iR8500/7200

SERVICE MANUAL

REVISION 1

Canon

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Application

This manual has been issued by Canon Inc. for qualified persons to learn technical theory, installation, maintenance, and repair of products. This manual covers all localities where the products are sold. For this reason, there may be information in this manual that does not apply to your locality.

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Caution

Use of this manual should be strictly supervised to avoid disclosure of confidential information.

1 Symbols Used

This documentation uses the following symbols to indicate special information:

Symbol	Description
	Indicates an item of a non-specific nature, possibly classified as Note, Caution, or Warning.
	Indicates an item requiring care to avoid electric shocks.
	Indicates an item requiring care to avoid combustion (fire).
	Indicates an item prohibiting disassembly to avoid electric shocks or problems.
	Indicates an item requiring disconnection of the power plug from the electric outlet.
	Indicates an item intended to provide notes assisting the understanding of the topic in question.
	Indicates an item of reference assisting the understanding of the topic in question.
	Provides a description of a service mode.
	Provides a description of the nature of an error indication.
	Refers to the Copier Basics Series for a better understanding of the contents.

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2 Outline of the Manual

This Service Manual provides basic facts and figures about the iR8500 series and the side paper deck designed as an option to the copier; use the information for servicing the machine in the field, thus ensuring the initial product quality.

For the DADF and other options, separate service manuals are made available for information, refer to their respective manuals.

This Service Manual consists of the following chapters:

Chapter 1 Introduction:	features, specifications, names of parts, operation of the machine
Chapter 2 New Functions:	differences from the GP605 in terms of various mechanisms, disassembly/assembly of mechanical systems.
Chapter 3 Main Controller:	outline of the main controller
Chapter 4 Installation:	requirements for the site of installation, installation procedure, relocation procedures, and installation of options
Chapter 5 Maintenance and Inspection:	periodically replaced parts, consumables and durables tables, scheduled servicing chart
Chapter 6 Troubleshooting:	standards, adjustments, arrangement of electrical components, troubleshooting image faults, troubleshooting malfunctions, upgrading
Appendix:	general timing chart, general circuit diagram
Service Modes	
Error Codes	

The contents of this Service Manual are subject to change for product improvement, and major changes will be communicated in the form of Service Information bulletins.

All service persons are expected to be familar with the contents of this Service Manual and the Service Information bulletins, equipping themselves with the ability to isolate and correct possible faults in the machine.

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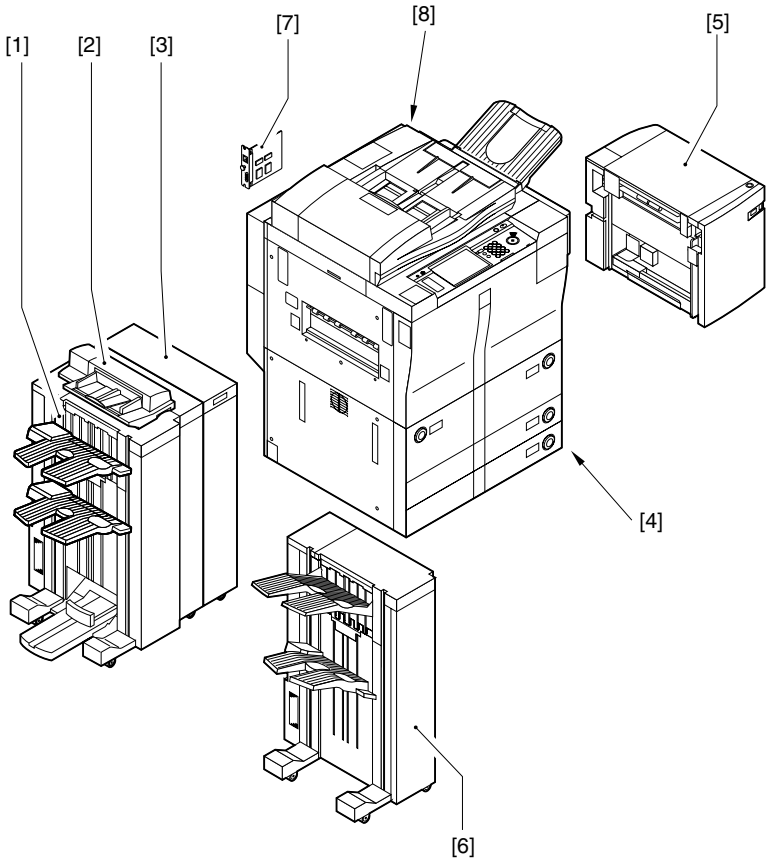
3 System Configuration

3.1 iR8500

The iR8500 may be configured as follows:



[1] Saddle Finisher-K3/K3N/K4/K4N
[2] Inserter-B1
[3] Paper Folding Unit-C1
[4] iR8500
[5] Side Paper Deck-M1
[6] Finisher-K1/K1N/K2/K2N
[7] Network LIPS Printer Kit-B1
[8] DADF-J1 (standard)

F00-301-01

Some products are not sold in certain sales areas.

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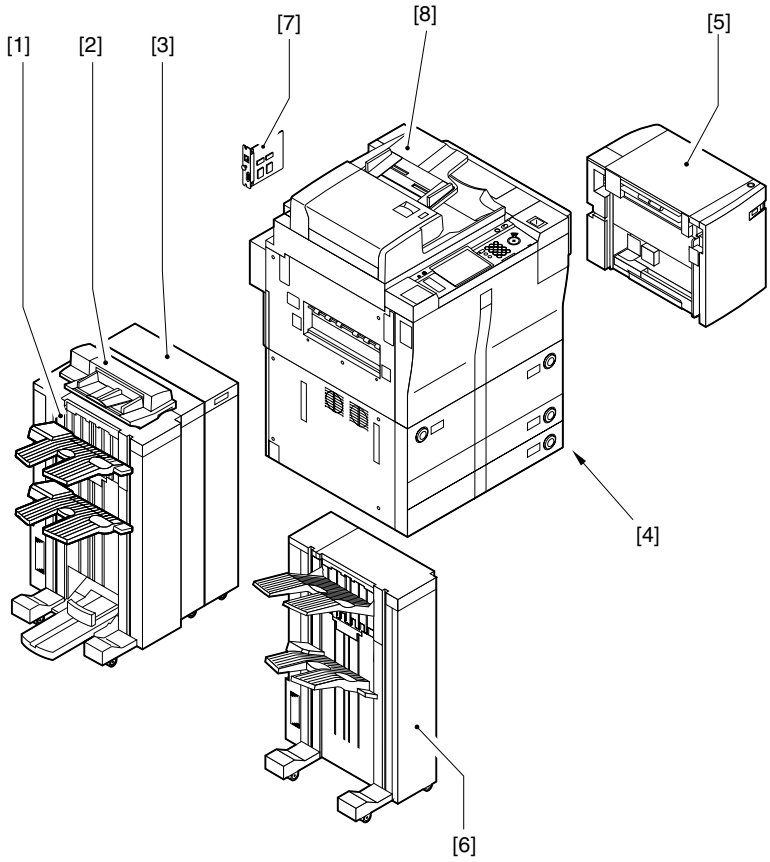
3.2 iR7200

The iR7200 may be configured as follows:



[1] Saddle Finisher-K3/K3N/K4/K4N
[2] Inserter-B1
[3] Paper Folding Unit-C1
[4] iR7200
[5] Side Paper Deck-M1
[6] Finisher-K1/K1N/K2/K2N
[7] Network LIPS Printer Kit-B1
[8] DADF-D1 (standard)

F00-302-01

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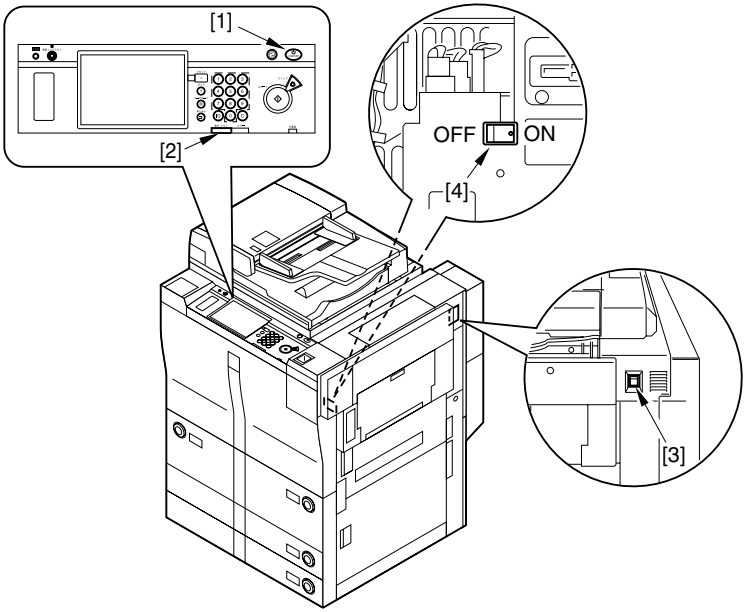
Points to Note When Turning Off the Main Power Switch

Be sure to turn off the main power switch and disconnect the power plug before disassembly work; in addition, keep the following in mind.

1. If you turn off the main power switch while the printer function is in use, the data being processed can be lost. Check to make sure that the Operation/Memory lamp on the control panel is off before operating the main power switch.
2. Do not turn off the main power switch while downloading is taking place; otherwise, the machine may stop operating.
3. If the heater switch is turned on, the cassette heater and the drum heater will remain powered even when the main power switch is turned off.
4. Take care as some components remain powered even when the front cover is opened as long as the main power switch remains on.



[1] Control panel power switch
[2] Operation/Memory lamp
[3] Main power switch
[4] Heater switch

F00-302-02

4 Safety

4.1 Safety of Laser Light

Laser light can prove to be harmful to the human body. The machine's laser system, however, is sealed inside a protective housing and external covers to prevent leakage of laser light to its outside, ensuring the safety of the user as long as the machine is used for its intended functions.

4.2 CDRH Ordinances

The Center for Devices and Radiological Health (CDRH) of the US Food and Drum Administration put into force ordinances related to laser products on August 2, 1976.

These ordinances apply to laser products manufactured on and after August 1, 1976, and sale of laser products is prohibited within the US unless they bear a certificate of compliance.

The following is the label that indicates compliance with the CDRH ordinances, and it must be found on all laser products sold in the US.

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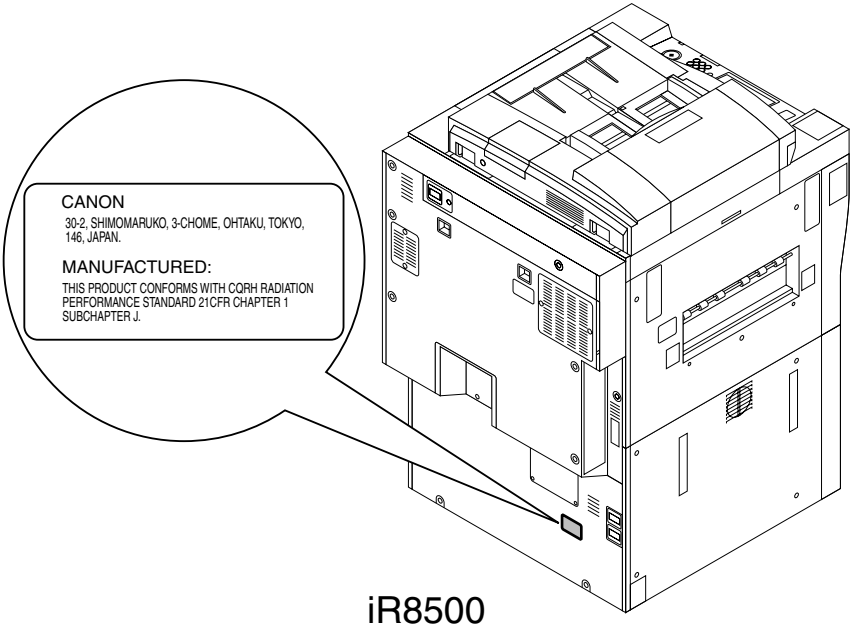

iR8500

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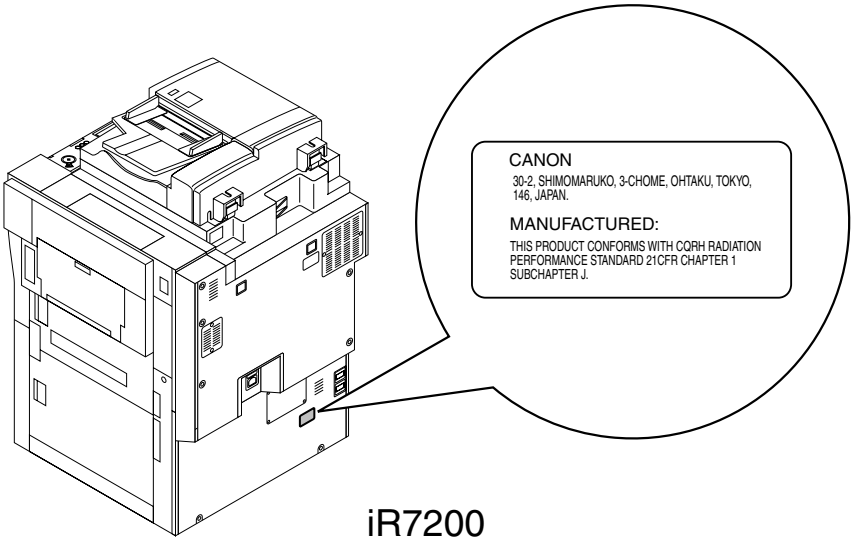

iR7200

F00-402-02

The description may vary from model to model.

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4.3 Handling the Laser System

You must take extra care when servicing the area around the machine's laser system, as by not bringing a high-reflectance screwdriver into the laser path.

Take such precautions as removing the watch and rings before starting the work (to prevent reflection of laser light to the eye).

The machine's laser light is red, and covers that can reflect laser light are identified by the following label. Take full care whenever servicing areas of the machine behind these covers.

This label is attached to all covers inside the machine where hazards from laser light exist.

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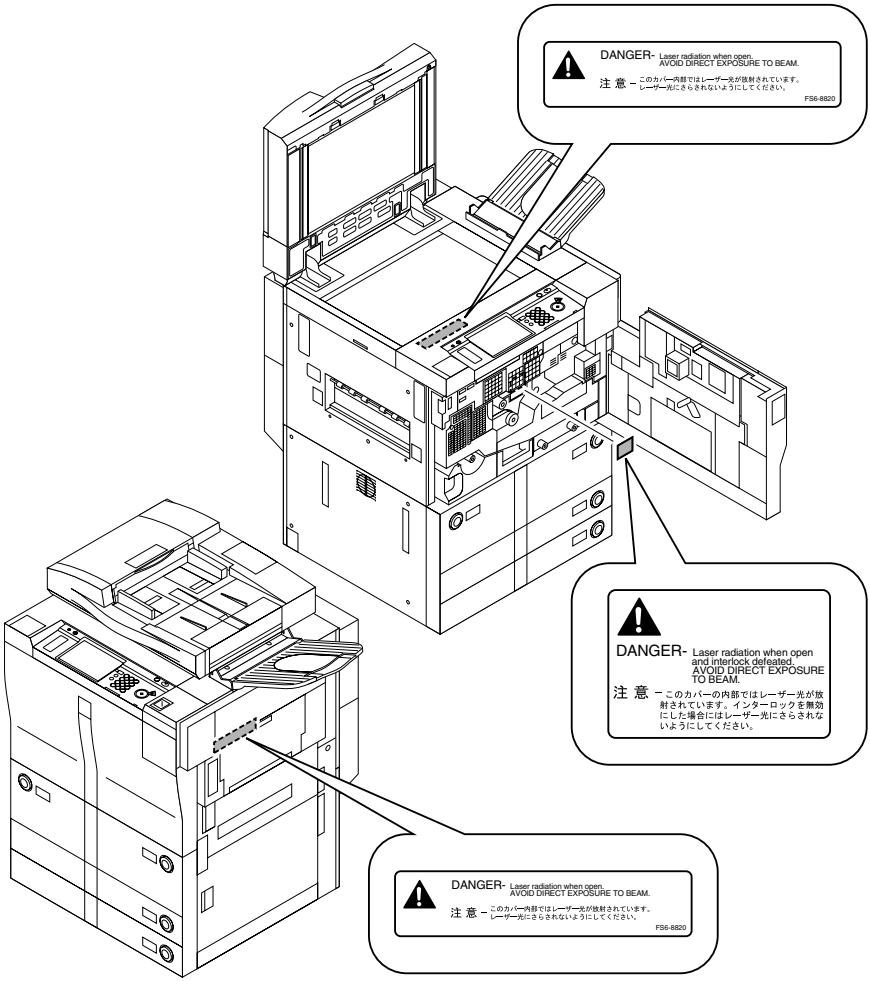
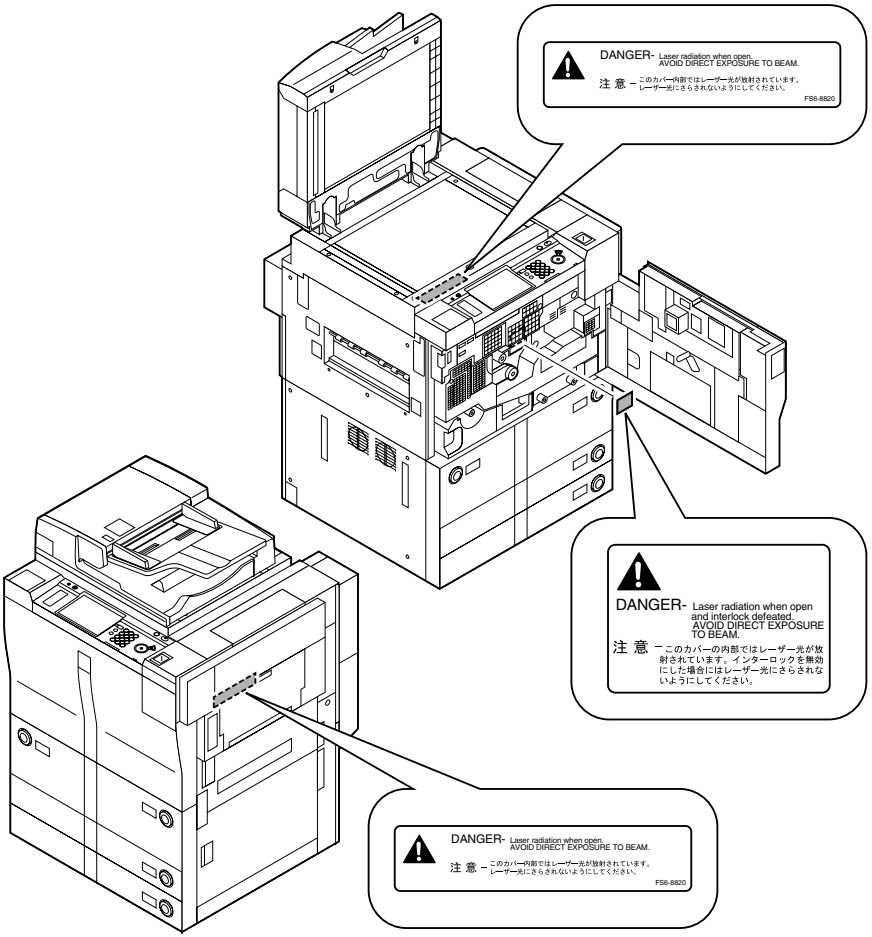


iR8500

F00-403-01



iR7200

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4.4 Safety of Toner

The machine's toner is a non-toxic product consisting of plastic, iron, and small amounts of dyes.

If your skin or clothes have come into contact with toner, try removing as much of it as possible with dry paper tissues, and wash off with water (Do not use warm water, as it would turn the toner jelly-like and become fused with the fibers of the fabric).

In addition, avoid bringing toner into contact with plastic material, as it tends to dissolve easily.

Do not throw toner into fire to avoid explosion.

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CHAPTER 1
INTRODUCTION

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1 Features

1.1 High-Speed, High-Quality Images

- The high-speed engine combined with twin laser exposure technology enables production of high-speed, high-quality images.
- The CCD is a 4-channel CCD (iR8500).
- Copying speed:
  iR8500: As many as 85 copies per may be made per minutes (A4/LTR, 1-to-N; paper from cassette/deck)
  iR7200: As many as 72 copies per may be made per minutes (A4/LTR, 1-to-N; paper from cassette/deck)
- Printing is at the following resolutions:
  In copier mode, 1200 dpi (equivalent) × 600 dpi (smoothing selected).
  In printer mode, 2400 dpi (equivalent) × 600 dpi.

1.2 High Durability, High Reliability

- The use of an A-si photosensitive drum promises high durability and high reliability.

1.3 High-Performance Controller, Large-Capacity Hard Disk for High-Level Processing

- The iR controller processor controls multiple jobs (parallel processing) efficiently, processing data at high speed.
- The 10 GB hard disk also serves as image memory for sorting.
- A Box function has been expanded to enable storage of a large volume of data.

1.4 Ease of Use

- The large-size color touch panel (1/1VGA) has a high resolution for better viewing.

1.5 Large Source of Paper

- With the addition of the Side Paper Deck-M1 (option), up to 7650 sheets of paper (80 g/m^2) may be accommodated for immediate use:
  Right deck: 1500 sheets <1700 sheets>*
  Left deck: 1500 sheets <1700 sheets>*
  Cassette 3: 550 sheets <600 sheets>*
  Cassette 4: 550 sheets <600 sheets>*
  Manual feed tray: 50 sheets
  Side Paper Deck-M1 (option): 3500 sheets <4000 sheets*>

  * If paper of 64 g/m^2.

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1.6 Various Delivery Handling (w/ options)

a. Stapling

• With the Finisher-K1/K1N/K2/K2N and the Saddle Finisher-K3/K3N/K4/K4N (option), as many as 100 sheets may be stapled at one or two points.

100-sheet bind:	Stapler-G1
	Staple Cartridge (standard with finisher)
50-sheet bind:	Stapler-H1
	Staple Cartridge-H1

b. Saddle stiching

• With the Saddle Finisher-K3/K3N/K4/K4N's saddle stitching function, sheets may be stapled in the middle or may be folded for delivery.

c. Punching

• With the Finisher-K2/K2N, Saddle finisher-K3/K3N/K4/K4N, and the Puncher Unit-E1/F1 (option), holes (2, 3, or 4) may be made in the sheets for delivery.

Finisher-K2/K2N:	supports 2/3-hole sheets.
Saddle Finisher-K3/K3N:	supports 2/3-hole sheets.
Saddle Finisher-K4/K4N:	supports 4-hole sheets.

d. Folding Function

• Paper may be folded into a Z for delivery (if equipped with a Paper Folding Unit-C1).

1.7 High-Level Printing Functions Supporting Uses on a Network

• The addition of the Network LIPS Printer Kit-B1 (option) will bring about high-level network printing functions.

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2 Specifications

2.1 Copier

2.1.1 Type

Item	Description
Body	Console
Copyboard	Fixed
Light source	Fluorescent lamp
Lens	Lens array (F3.7)
Photosensitive medium	Amorphous silicon drum (108-mm dia.)

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2.1.2 Methods

Item		Description
Reproduction		Indirect electrostatic
Charging		Corona charging
Exposure		Twin-laser exposure
Copy density adjustment		Auto or manual
Development		Dry, single-component jumping toner projection
Pickup	Auto	Paper deck: 2 compartments (right deck, left deck)
		Cassette: 2 cassettes (cassette 3, cassette 4)
	Manual	Manual feed tray
		(5.5 mm deep; about 50 sheets of 80 g/m^2 paper)
Transfer		Corona transfer, post charging/exposure
Separation		Static separation
Cleaning		Cleaning blade
Fixing		By heater roller
		• iR8500
		100 V: 100 W (main) + 400 W (sub)
		208/230 V: 900 W (main) + 600 W (sub)
		• iR7200
		100V: 800W (main) + 250W (sub)
		208/230V: 900W (main) + 600W (sub)

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2.1.3 Functions

Item	Description
Original type	Sheet, book, 3-D object (2 kg max.)
Maximum original side	A3/279.4 × 431.8 mm (11 × 17)
Reproduction ratio	Direct 1: 1 Reduce I 1: 0.250 Reduce II 1: 0.500 Reduce III 1: 0.611 Reduce IV 1: 0.707 Reduce V 1: 0.816 Reduce VI 1: 0.865 Enlarge I 1: 1.154 Enlarge II 1: 1.224 Enlarge III 1: 1.414 Enlarge IV 1: 2.000 Enlarge V 1: 4.000 Zoom 1: 0.250 to 4.000 (between 25% and 400%, in 1% increments)
Wait time	• iR8500: 6 min or less (at 20°C) • iR7200: 8 min or less (100V model; at 20°C) 6 min or less (208/230V model; at 20°C)
First copy time	4.3 sec or less (stream reading, right deck, Direct, A4/LTR, non-ARE, straight delivery, fluorescent lamp pre-activation) 2.9 sec or less (Book, right deck, Direct, A4/LTR, non-ARE, straight delivery, fluorescent lamp pre-activation)
Continuous reproduction	1 to 999 sheets
Copy size	Single-sided AB A3 max., postcard min. (vertical feed) Inch 279.4 × 431.8 mm max. (11 × 17), STMT min. (vertical feed) Double-sided AB A3 max., A5 min. (vertical feeding) Inch 279.4 × 431.8 mm max. (11 × 17), STMT min. (vertical feed)

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Item	Sheet
Right deck Left deck	• Plain paper (64 to 80 g/m^2) A4, B5, LTR • Recycled paper (64 to 80 g/m^2) A4, B5, LTR • Eco paper (80 g/m^2) A4 • Tracking paper A4, B5 • Colored paper (Canon-recommended) A4 • Thick paper (90 to 200 g/m^2) A4, B5, LTR • 3-hole paper (horizontal feed) LTR
Cassette 3 Cassette 4	• Plain paper (64 to 80 g/m^2) A3, B4, A4, B5, A5R, A4R, B5R, 279.4 × 431.8 mm (11 × 17), LGL, LTR, LTRR, STMT (vertical feed) • Recycled paper (64 to 80 g/m^2) A3, B4, A4, B5, A5R, A4R, B5R, 279.4 × 431.8 mm (11 × 17), LGL, LTR, LTRR, STMT (vertical feed) • Eco paper (80 g/m^2) A3, A4, A4R • Colored paper (Canon-recommended) B4, A4, A4R • Thick paper (90 to 200 g/m^2) A3, B4, A4, B5, A4R, B5R, LTR, LTRR • 3-hole paper (horizontal feed) LTR, LTRR • Index paper A4, LTR
Manual feed tray	• Plain paper (64 to 80 g/m^2) A3, B4, A4, B5, A5R, A4R, B5R, 279.4 × 431.8 mm (11 × 17), LGL, LTR, LTRR, STMT (vertical feed) • Recycled paper (64 to 80 g/m^2) A3, B4, A4, B5, A5R, A4R, B5R, 279.4 × 431.8 mm (11 × 17), LGL, LTR, LTRR, STMT (vertical feed)

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Item	Sheet
Manual feed tray	• Eco paper (80 g/m^2) A3, A4, A4R • Tracing paper A3, B4, A4, B5, A4R, B5R • Transparency (Canon-recommended) (horizontal feed) A4, A4R, LTR, LTRR • Colored paper (Canon-recommended) B4, A4, A4R • Postcard (vertical feed only) Postcard, double-card, 4-sheet card (horizontal feed only) • Label sheet (Canon-recommended) B4, A4, A4R, LTR, LTRR • Thick paper (90 to 200 g/m^2) A3, B4, A4, B5, A4R, B5R, LTR, LTRR • 3-hole paper (horizontal feed) LTR, LTRR
Single-side copying	• Plain paper (64 to 80 g/m^2) A3, B4, A4, B5, A5, A5R, A4R, B5R, 279.4 × 431.5 mm (11 × 17), LGL, LTR, LTRR, STMT (vertical feed) • Recycled paper (64 to 80 g/m^2) A3, B4, A4, B5, A5R, A4R, B5R, 279.4 × 431.5 mm (11 × 17), LGL, LTR, LTRR, STMT (vertical feed) • Eco paper (80 g/m^2) A3, A4, A4R • Tracing paper A3, B4, A4, B5, A4R, B5R • Transparency (Canon-recommended) (horizontal feed) A4, A4R, LTR, LTRR • Colored paper (Canon-recommended) B4, A4, A4R • Postcard (vertical feed only) Postcard, double-card, 4-sheet card (horizontal feed only) • Label sheet (Canon-recommended) B4, A4, A4R, LTR, LTRR • Thick paper (90 to 200 g/m^2) A3, B4, A4, B5, A4R, B5R, LTR, LTRR • 3-hole paper (horizontal feed) LTR, LTRR • Tab sheet A4, LTR

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Item	Paper
Reversal delivery mode	• Plain paper (64 to 80 g/m^2) A3, B4, A4, B5, A5, A4R, B5R, A5R, 279.4 × 431.8 mm (11 × 17), LGL, LTR, LTRR, STMT (vertical feed) • Recycled paper (64 to 80 g/m^2) A3, B4, A4, B5, A5, A4R, B5R, A5R, 279.4 × 431.8 mm (11 × 17), LGL, LTR, LTRR, • Eco paper (80 g/m^2) A3, A4, A4R • Tracing paper A3, B4, A4, B5, A4R, B5R • Colored paper (Canon-recommended) B4, A4, A4R • Postcard 4-Sheet card (horizontal feed only) • Label (Canon-recommended) B4, A4, A4R, LTR, LTRR • Thick paper (90 to 200 g/m^2) A3, B4, A4, B5, A4R, B5R, LTR, LTRR • 3-hole paper (horizontal feed) LTR, LTRR • Tab sheet A4, LTR
Double-sided copying mode Auto	• Plain paper (64 to 80 g/m^2) A3, B4, A4, B5, A5R, A4R, B5R, 279.4 × 431.8 mm (11 × 17), LGL, LTR, LTRR, STMT (vertical feed) • Recycled paper (64 to 80 g/m^2) A3, B4, A4, B5, A5R, A4R, B5R, 279.4 × 431.8 mm (11 × 17), LGL, LTR, LTRR, STMT (vertical feed) • Eco paper A3, A4, A4R • Colored paper (Canon-recommended) B4, A4, A4R • Thick paper (90 to 200 g/m^2) A3, B4, A4, B5, A4R, B5R, LTR, LTRR • 3-hole paper (horizontal feed) LTR, LTRR

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Item	Sheet type
Double-sided copying mode Manual feed tray	• Plain paper (64 to 80 g/m^2) A3, B4, A4, B5, A5R, A4R, B5R, 279.4 × 431.8 mm (11 × 17), LGL, LTR, LTRR, STMT (vertical feed) • Recycled paper (64 to 80 g/m^2) A3, B4, A4, B5, A5R, A4R, B5R, 279.4 × 431.8 mm (11 × 17), LGL, LTR, LTRR, STMT (vertical feed) • Eco paper (80 g/m^2) A3, A4, A4R • Colored paper (Canon-recommended) B4, A4, A4R • Postcard (vertical fee only) Postcard, double-card, 4-sheet card (horizontal feed only) • Thick paper (90 to 200 g/m^2) A3, B4, A4, B5, A4R, B5R, LTR, LTRR • 3-hole paper (horizontal feed) LTR, LTRR

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Item	Description
Tray	
Paper deck (right, left)	162 mm deep (approx.; about 1500 sheets of 80 g/m^2 paper)
Cassette 3/4	55 mm deep (approx.; about 550 sheets of 80 g/m^2 paper)
Hard disk size	10 GB
Non-image width	
Leading edge	Direct, Enlarge/Reduce: 4.0 + 1.5/-1.0 mm <4.5 ± 1.8 mm>*
Trailing edge	Direct, Reduce/Reduce: 2.5 ± 1.5 mm <2.5 ± 1.8 mm>*
Left/right (1st side)	Direct, Enlarge, Reduce: 2.5 ± 1.5 mm <2.5 ± 2.0 mm>*
Auto clear	Yes (2 min standard; may be changed between 0 and 9 min in 1-min increments)
Auto power-off	No
Power save mode	
Low-power mode	Yes (15 min standard; may be changed in user mode to following: 10, 15, 20, 30, 40, 50, 60, 90 min, 2, 3, 4 hr)
Auto sleep	Yes (60 min standard; may be changed in user mode to following: 10, 15, 20, 30, 40, 50, 60, 90 min, 2, 3, 4 hr)
Power save mode	Yes (-10% standard; may be changed to following in user mode: -10%, -25%, -50%, no return (0%))
Accessories	Finisher-K1/K1N Finisher-K2/K2N Saddle Finisher-K3/K3N Saddle Finisher-K4/K4N FL cassette-P4 Network LIPS Printer Kit-B1 Stapler-G1 Staple Cartridge-H1 Stapler-H1 Paper Folding Unit-C1 Inserter-B1 Side Paper Deck-M1 Index Paper Attachment-A1 Card Reader-D1

* The values within < > indicate the use of the ADF.

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2.1.4 Others

Item		Description
Use	Temperature range	15° to 30°C
Environment	Humidity range	5 % to 80 %
	Atmospheric pressure	810.6 to 1013.3 hpa (0.8 to 1.0 atm)
Power supply	iR8500	
	100 V/20 A (50/60 Hz)	LQP----
	208 V/12 A (50/60 Hz)	MPB----
	220 to 240 V/13 A	UNN----
	(50/60 Hz)	QNF----
		SNF----
		TNE----
		PNK----
		DNL----
		RNF----
	iR7200	
	100V/15A (50/60Hz)	MHV---
	20SV/12A (60Hz)	MPV---
	230V/13A (50/60Hz)	QSV---
		QSX---
		QES---
		RES---
		TED---
	iR7200 (PS Kanji model)	UHV---
	100V/15A (50/60Hz)	MHX---
Power consumption		100 V model: 2.0 kW or less
	Maximum	208 V model: 2.7 kW or less (iR8500)
		2.5 kW or less (iR7200)
		230V model: 2.7 kW or less
Noise	Copying	81 dB or less
	Standby	59.5 dB or less
Ozone		0.05 ppm or less (after 250,000 sheets)
Dimensions (approx.)		iR8500: 764 (W) × 795 (D) × 1137 (H) mm
Weight		iR7200: 764 (W) × 795 (D) × 1155 (H) mm
		iR8500: 280 kg (approx.; including ADF)
		iR7200: 273 kg (approx.; including ADF)
Consumables storage		
	Paper	Keep wrapped to avoid humidity.
	Toner	Avoid direct sunshine; keep at 40°C, 85% or less.

T01-201-09

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Reproduction mode		Size	Paper size	copies/min (1-to-N) iR8500	iR7200
Direct		A3 (297 × 420 mm)	A3	43	36
		A4 (210 × 297 mm)	A4	85	72
		B4 (257 × 364 mm)	B4	50	42
		B5 (182 × 257 mm)	B5	85	72
		A4R (297 × 210 mm)	A4R	62	53
		B5R (257 × 182 mm)	B5R	72	61
		A5R (210 × 148 mm)	A5R	85	72
Reduce	II (50.0 %)	A3 → A5R	A5R	85	72
	III (61.1 %)	A3 → B5R	B5R	72	61
	IV (70.7 %)	B4 → B5R	B5R	72	61
		A3 → A4R	A4R	62	53
	V (81.6 %)	B4 → A4R	A4R	62	53
		B5R → A5R	A5R	85	72
	VI (86.5%)	A4 → B5	B5	85	72
		A3 → B4	B4	50	42
Enlarge	II (200.0 %)	A5R → A3	A3	43	36
	III (141.4 %)	A4R → A3	A3	43	36
		B5R → B4	B4	50	42
	IV (122.4 %)	A4R → B4	B4	50	42
		A5 → B5	B5	85	72
	V (115.4 %)	B4 → A3	A3	43	36
		B5 → A4	A4	85	72

Copier delivery, Auto paper selection ON, Auto density adjustment ON, Non-sort, Deck/Cassette

T01-201-10

Reproduction mode		Size	Paper size	copies/min (1-to-N) iR8500	iR7200
Direct		279.4 × 431.8 mm (11 × 17)	279.4 × 431.8 mm (11 × 17)	42	35
		LTR	LTR	85	72
		LGL	LGL	51	43
		LTRR	LTRR	66	56
		STMTR	STMTR	85	72
Reduce	II (50.0 %)	279.4 × 431.8 mm (11 × 17) → STMTR	STMTR	85	72
	III (64.7 %)	279.4 × 431.8 mm (11 × 17) → LTRR	LTRR	66	56
	IV (73.3 %)	279.4 × 431.8 mm (11 × 17) → LGL	LGL	51	43
	V (78.6 %)	LGL→LTRR	LTRR	66	56
Enlarge	II (200.0 %)	STMTR* → 279.4 × 431.8 mm (11 × 17)	279.4 × 431.8 mm (11 × 17)	42	35
	III (129.4 %)	LTRR → 279.4 × 431.8 mm (11 × 17)	279.4 × 431.8 mm (11 × 17)	42	35
	IV (121.4 %)	LGL → 279.4 × 431.8 mm (11 × 17)	279.4 × 431.8 mm (11 × 17)	42	35

* Cannot be used as an original (STMTR) for placement in the ADF.

Copier delivery, Auto paper selection ON, Auto density adjustment ON, Non-sort, Deck/Cassette

T01-201-11

The above specifications are subject to change for product improvement.

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2.2 Side Paper Deck-M1

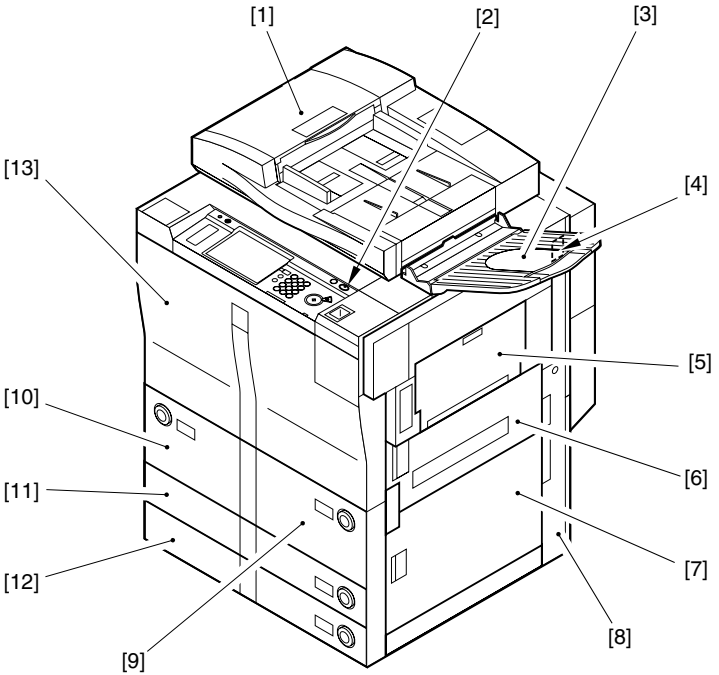
Item	Description
Pickup method	Separation roller
Paper accommodation	Side tray
Copy paper type	• Plain paper (64 to 80 g/m^2) A4, B5, LTR • Recycled paper (64 to 80 g/m^2) A4, B5, LTR • Eco paper (80 g/m^2) A4 • Tracing paper A4, B5 • Colored paper (Canon-recommended) A4 • Thick paper (90 to 200 g/m^2) A4, B5, LTR • 3-hole paper LTR
Stack	385 mm high (approx.; about 3500 sheets of 80 g/m^2 paper, about 4000 sheets of 64 g/m^2 paper)
Serial number	XCB ---- (A4) XCE ---- (LTR)
Paper size switching	By size guide plate and in service mode (OPTION)
Dimensions (approx.)	326.2 (W) × 583 (D) × 574.5 (H) mm
Weight	46 kg (approx.)
Power supply	DC power supplied by host machine
Operating environment	Same as host machine

T01-202-01

The above specifications are subject to ange for product improvement.

3 Names of Parts

3.1 External View (iR8500)



[1] ADF
[2] Control panel power switch
[3] Original delivery tray
[4] Main power switch
[5] Manual feed tray
[6] Right upper cover
[7] Right lower cover
[8] Waste toner case, Drum protection sheet case
[9] Right deck
[10] Left deck
[11] Cassette 3
[12] Cassette 4
[13] Front cover

F01-301-01

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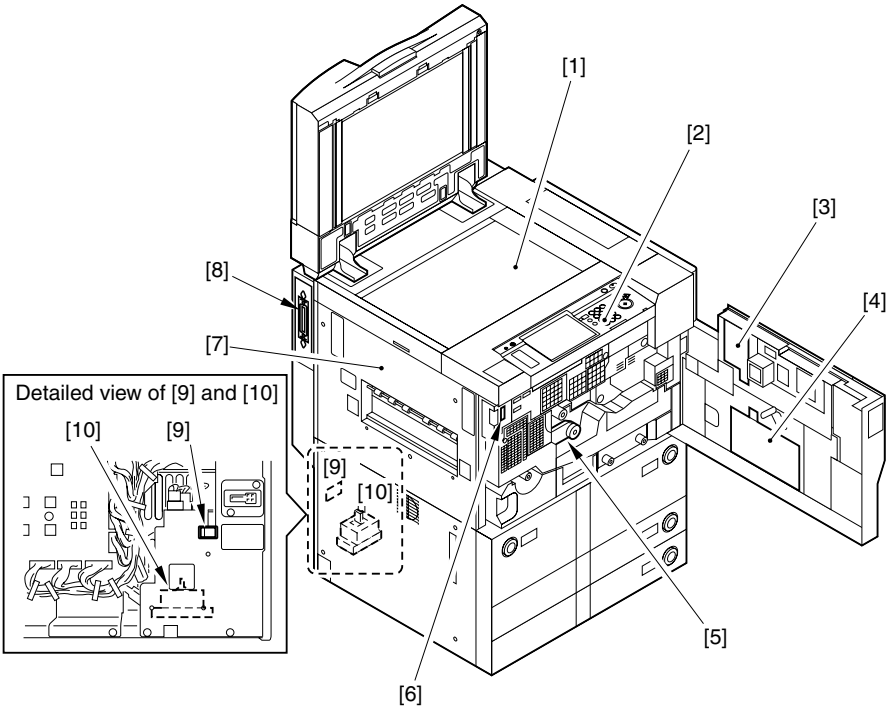
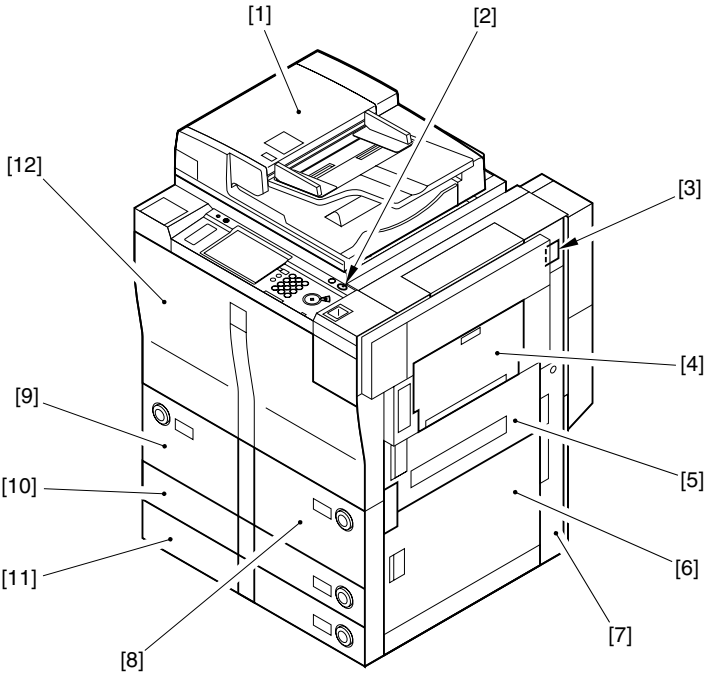


[1] Copyboard glass
[2] Control panel
[3] Grip/Drum stop tool case
[4] Service Book case
[5] Feeding assembly releasing lever
[6] Cover switch assembly
[7] Delivery cover
[8] Parallel connector
[9] Heater switch
[10] Leakage breaker

F01-301-02

3.2 External View (iR7200)



[1] ADF
[2] Control panel power switch
[3] Main power switch
[4] Manual feed tray
[5] Right upper cover
[6] Right lower cover
[7] Waste toner case, Drum protection sheet case
[8] Right deck
[9] Left deck
[10] Cassette 3
[11] Cassette 4
[12] Front cover

F01-302-01

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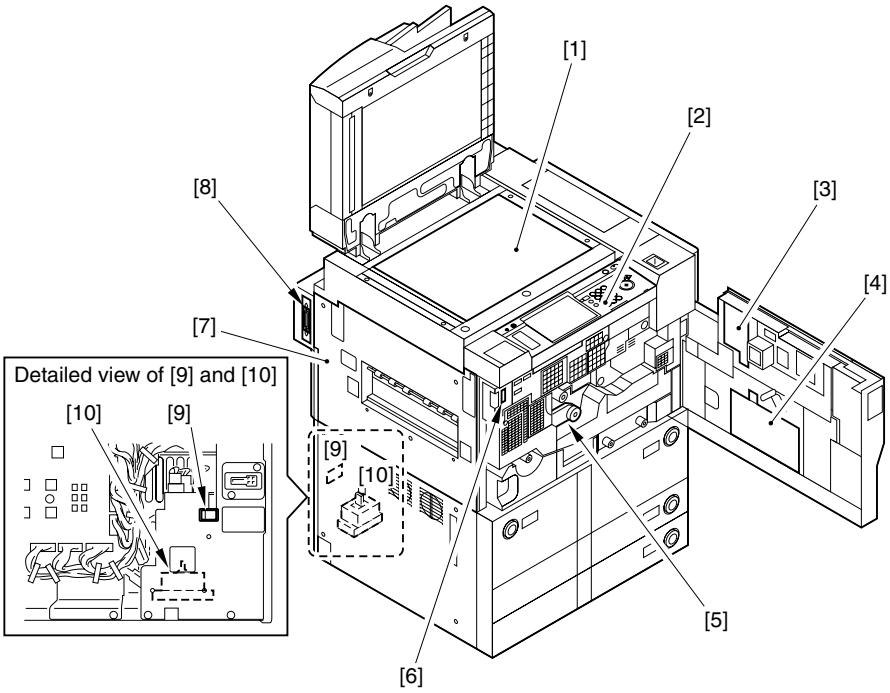
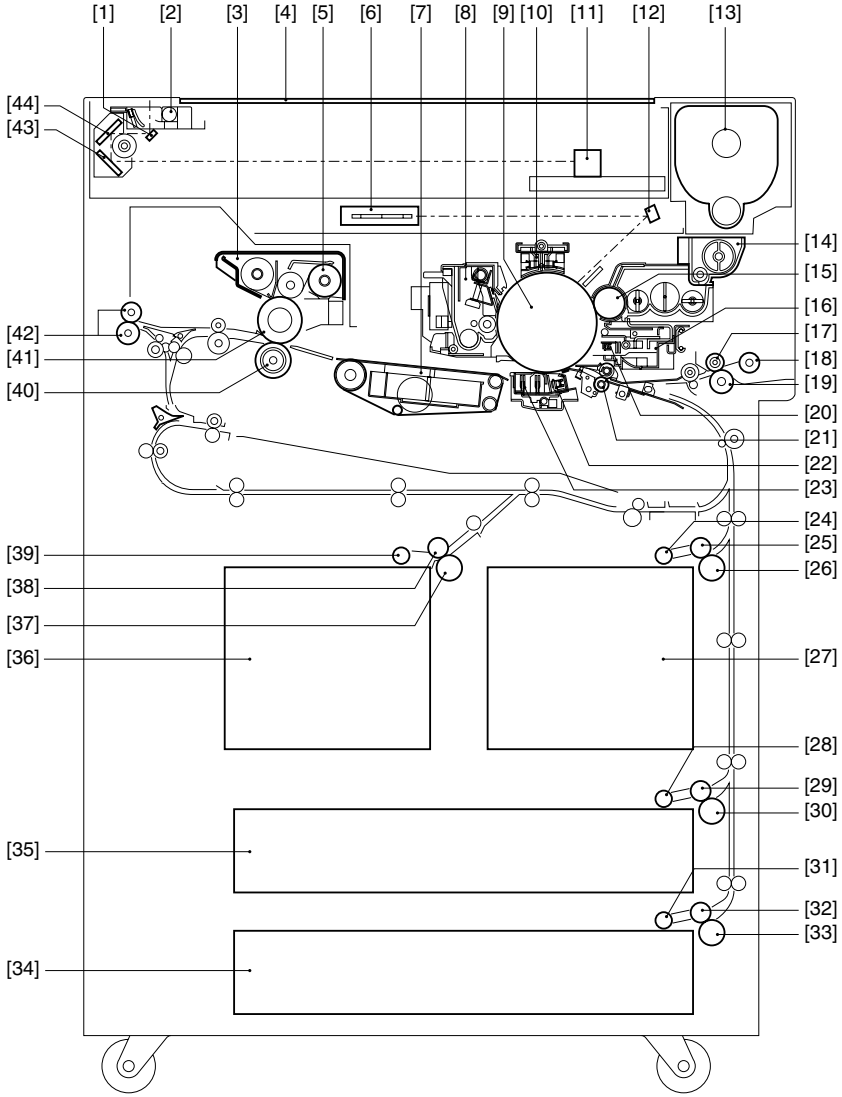


[1] Copyboard glass
[2] Control panel
[3] Grip/Drum stop tool case
[4] Service Book case
[5] Feeding assembly releasing lever
[6] Cover switch assembly
[7] Delivery cover
[8] Parallel connector
[9] Heater switch
[10] Leakage breaker

F01-302-02

3.3 Cross Section (iR8500)



F01-302-01

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[1] No. 1 mirror
[2] Scanning lamp
[3] Fixing assembly
[4] Copyboard glass
[5] Fixing web
[6] Laser unit
[7] Feeding assembly
[8] Drum cleaning assembly
[9] Photosensitive drum
[10] Primary charging assembly
[11] CCD unit
[12] Bending mirror
[13] Toner cartridge
[14] Hopper
[15] Developing cylinder
[16] Pre-transfer charging assembly
[17] Manual feed feeding roller
[18] Manual feed pickup roller
[19] Manual feed separation roller
[20] Pre-transfer exposure LED
[21] Registration roller
[22] Transfer charging assembly
[23] Separation charging assembly
[24] Right deck pickup roller
[25] Right deck feeding roller
[26] Right deck separation roller
[27] Right deck
[28] Cassette 3 pickup roller
[29] Cassette 3 feeding roller
[30] Cassette 3 separation roller
[31] Cassette 4 pickup roller
[32] Cassette 4 feeding roller
[33] Cassette 4 separation roller
[34] Cassette 4
[35] Cassette 3
[36] Left deck
[37] Left deck separation roller
[38] Left deck feeding roller
[39] Left deck pickup roller
[40] Lower fixing roller
[41] Upper fixing roller
[42] External delivery roller
[43] No. 3 mirror
[44] No. 2 mirror

T01-302-01

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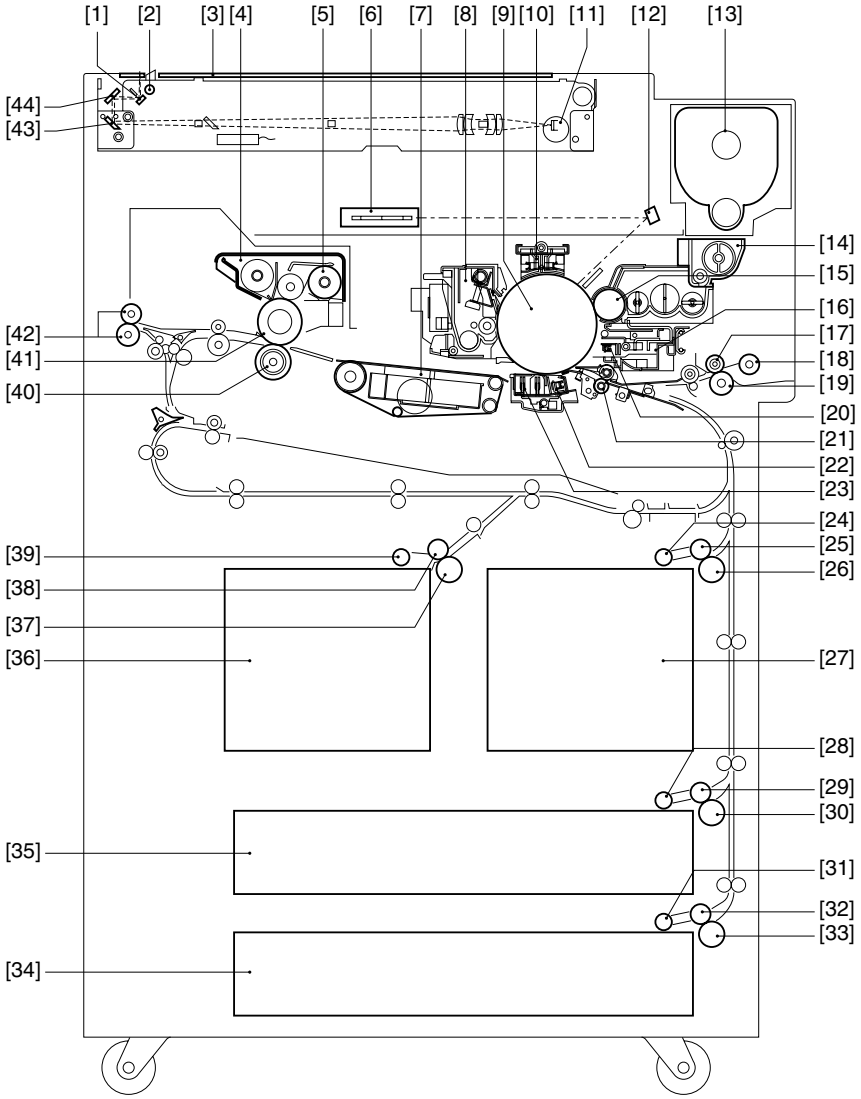
3.4 Cross Section (iR7200)



F01-304-01

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[1] No. 1 mirror
[2] Scanning lamp
[3] Fixing assembly
[4] Copyboard glass
[5] Fixing web
[6] Laser unit
[7] Feeding assembly
[8] Drum cleaning assembly
[9] Photosensitive drum
[10] Primary charging assembly
[11] CCD unit
[12] Bending mirror
[13] Toner cartridge
[14] Hopper
[15] Developing cylinder
[16] Pre-transfer charging assembly
[17] Manual feed feeding roller
[18] Manual feed pickup roller
[19] Manual feed separation roller
[20] Pre-transfer exposure LED
[21] Registration roller
[22] Transfer charging assembly
[23] Separation charging assembly
[24] Right deck pickup roller
[25] Right deck feeding roller
[26] Right deck separation roller
[27] Right deck
[28] Cassette 3 pickup roller
[29] Cassette 3 feeding roller
[30] Cassette 3 separation roller
[31] Cassette 4 pickup roller
[32] Cassette 4 feeding roller
[33] Cassette 4 separation roller
[34] Cassette 4
[35] Cassette 3
[36] Left deck
[37] Left deck separation roller
[38] Left deck feeding roller
[39] Left deck pickup roller
[40] Lower fixing roller
[41] Upper fixing roller
[42] External delivery roller
[43] No. 3 mirror
[44] No. 2 mirror

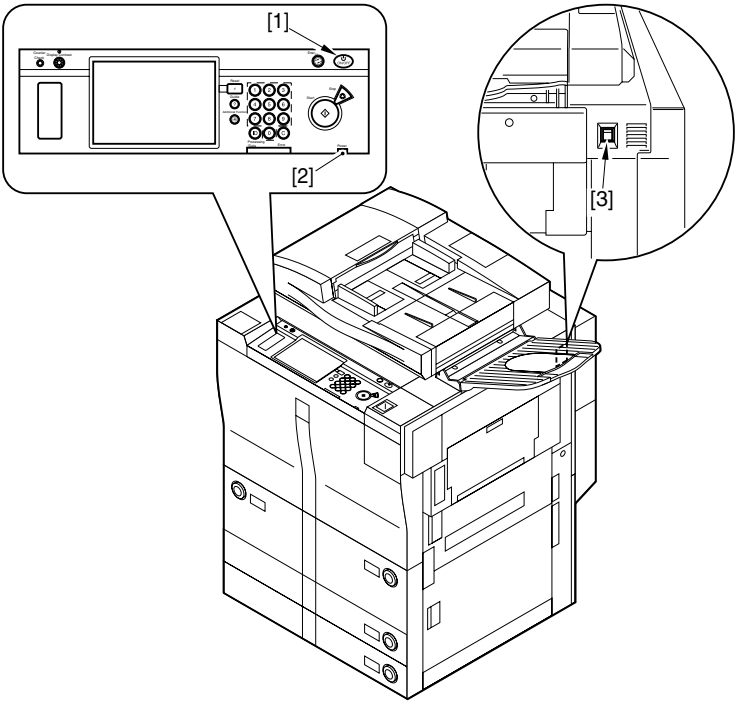
T01-304-01

4 Using the Machine

4.1 Power Switch

4.1.1 iR8500

The machine is equipped with two power switches: main power switch and control panel power switch. The machine is supplied with power when the main power switch is turned on; to end power save mode, low-power mode, or sleep mode, turn on the control panel power switch.



[1] Control panel power switch
[2] Main power lamp
[3] Main power switch

F01-401-01

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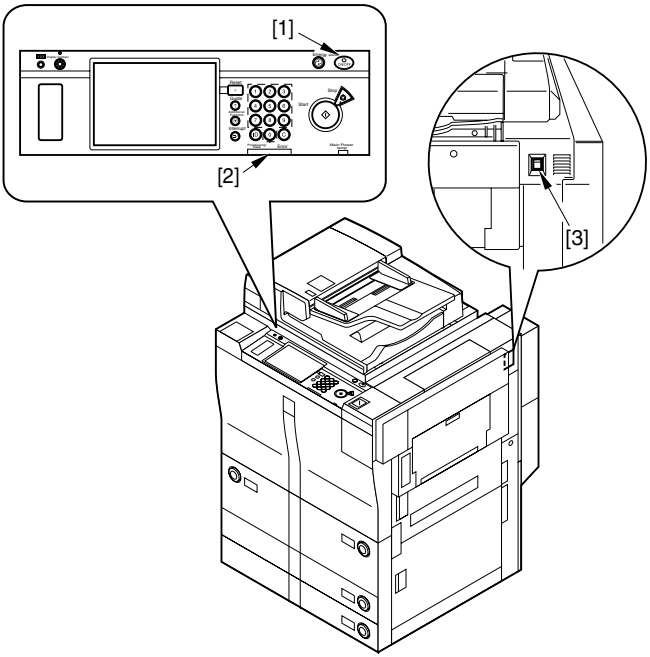
4.1.2 iR7200

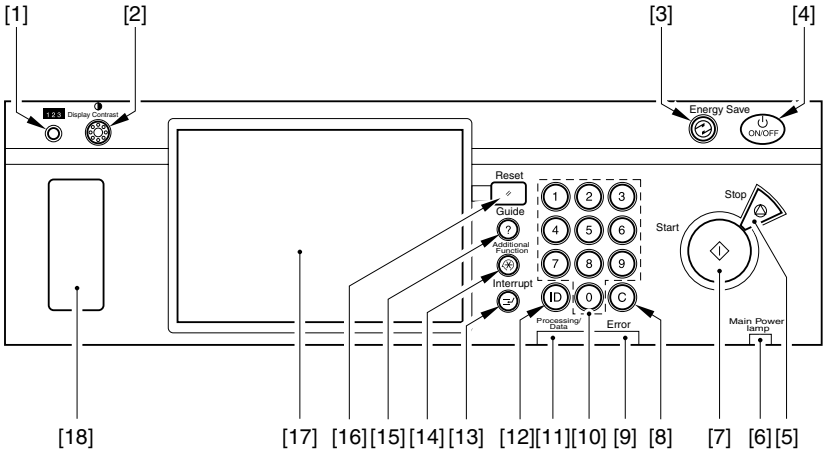
The machine is equipped with two power switches: main power switch and control panel power switch. The machine is supplied with power when the main power switch is turned on; to end power save mode, low-power mode, or sleep mode, turn on the control panel power switch.



[1] Control panel power switch
[2] Main power lamp
[3] Main power switch

F01-401-02

4.2 Control Panel



[1] Counter Check key*
[2] Image Contrast dial
[3] Power Save key
[4] Control panel power switch
[5] Stop key
[6] Main Power lamp
[7] Start key
[8] Clear key
[9] Error lamp
[10] Number keys
[11] Operation/Memory lamp
[12] ID key
[13] Interrupt key
[14] User Mode key
[15] Guide key
[16] Reset key
[17] Touch panel display
[18] Clip dent

* Press to indicate the counter reading on the touch panel.

F01-402-01

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4.3 Special Features

Mode	Description
Two-page Separation	Use it to copy two pages (e.g., left and right pages of an open book) on separate sheets by a single operation (Book mode only).
Cover/Sheet Insertion	Use it to add a front cover, back cover, and/or chapter covers printed on different sheets of paper.
Image Combination	Use it reduce 2, 4, or 8 originals automatically to print on a single sheet of paper.
Shift	Use it to move the entire image of an original to the center or a corner for printing.
Booklet	Use it to print single-sided or double-sided originals so that the output may later be turned into a booklet.
Transparency Interleaving	Use it to add a sheet of paper between transparencies.
Image Separation	Use it to enlarge a single original into 2 or 4 automatically to copy on selected separate sheets of paper.
Margin	Use it to create a binding margin along a side of the copy.
Different Size Originals	Use it to make copies of originals of different sizes (but of the same feeding width), each copy of the size suited to its respective original.
Job Build	Use it to print originals placed separately by a single operation.
Frame Erase	Use it to erase shadows or images of a frame line or punch holes that otherwise appear on copier.
Nega/Posi	Use it to print originals by reversing black and white areas of the original.
Image Repeat	Use it to print a single image vertically/horizontally in a specific number to fill the sheet.
Mirror Image	Use it to print an image of an original in the form of its mirror image.
Sharpness	Use it to print the image of an original at a higher definition (crisper black and white).
Image Combination	Use it to combine the image of an original and an image colleted by the scanner or with PDL images.
Tab Paper	Use it to add a tab sheet or to produce a tab sheet.
Mode Memory	Use it to store or recall a copying mode.
Recall	Use it to recall any one of the most recent copying modes for use in printing.

T01-403-01

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4.4 User Mode

Items related to the printer unit are indicated only when the machine is equipped with printer functions.

Level 1 item	Level 2 item	Level 3 item
Common Settings	Initial Functions	Copy*/Mail Box Set [System Monitor] as the Initial Function: On/Off* Set [Device] as the default screen for [System Monitor]: On*/Off
	Auto Clear Setting	Initial Function*/Selected Function
	Audible Tones	Entry Tone/Error Tone/Job Done Tone (for each, On*/Off)
	Inch Entry	On/Off*
	Drawer Eligibility For APS/ADS	Copy/Printer/Mail Box/Other (Manual: On/Off*; each cassette: On*/Off) Consider Paper Type: On/Off*
	Store Paper Type	Paper Deck (left/right), Side Paper Deck : Plain*/Recycled/Color/Thick/Tracing Paper Cassette (3/4): Plain*/Recycled/Color/Thick/Tracing Paper/Tab Paper
	Energy Saver Mode	-10%*/-25%/-50%/None
	Energy Consumption in Sleep Mode	Low*/High
	Tray Designation	Tray A: copier*/printer*/other* Tray B: copier*/printer*/other*
	Printing Priority	1 copier (priority)/2 printer/3 other
	Stack Bypass Standard Settings	On/Off*

* Factory default.

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Level 1 item	Level 2 item	Level 3 item
	Standard Local Print Settings	Paper Select: auto*/pickup position select Copies: 1* to 2000 Finisher: with Finisher-K1/K1N installed, non-sort/Collate/Offset-Collate*/Group/ Offset-Group/Staple (corner (Top Left/Bottom Left/Top Right/Bottom Right), Double (left/right)) with Finisher-K2/K2N, Saddle Finisher-K3/K3N/K4/K4N installed non-sort/Collate/Offset-Collate*/Group/ Offset-Group/Staple (corner (Top Left/Bottom Left/Top Right/Bottom Right), Double (left/right))/Hole Punch with Saddle Finisher-K3/K3N/K4/K4N + Paper Folding Unit-C1 installed non-sort/Collate/Offset-Collate*/Group/ Offset-Group/Staple (corner (Top Left/Bottom Left/Top Right/Bottom Right), Double (left/right))/Hole Punch/Z-Fold) Two-sided Print: On/Off* Erase Document After Printing: On/Off* Merge Documents: On/Off*
	Language Switch	On/Off* Japanese, English, French, German, Italian
	Initialize Common Settings	Initialize
Copy Settings	Standard key 1 Settings	each mode (No Settings*)
	Standars key 2 Settings	each mode (No Settings*)
	Auto Collate	On*/Off
	Image Orientation Priority	On/Off*
	Job Duration Display	On/Off*
	Auto Orientation	On*/Off
	Photo Mode	On/Off*
	Smart Scan (iR8500)	Initial Setting: On*/Off Change Original Type: On/Off* Recognizable Text: Japanese*/European/Russian
	Standard Settings	Store/Initialize
	Initialize Copy Settings	Initialize

* Factory default.

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Level 1 item	Level 2 item	Level 3 item
Timer Settings	Data & Time Settings	Settings (12 characters) Time Zone: GMT – 12:00 to GMT + 12:00, GMT+ 9:00* Summer Time: ON/OFF*
	Auto Sleep Time	Daylight Saving Time: On/Off* 10, 15, 20, 30, 40, 50 min, 1 hr*, 90 min, 2 to 4 hr (1-hr increments)
	Auto Clear Time	0, 1 to 9 min (1-min increments); 2 min*
	Time Until Unit Quiets Down	0, 1 to 9 min (1-min increments); 1 min*
	Daily Timer Settings	Sun/Mon/Tue/Wed/Thu/Fri/Sat 00:00~23:59 (1-min increments)
	Low-power Mode Time	10, 15*, 20, 30, 40, 50 min, 1 hr, 90 min, 2 to 4 hr (1-hr increments)
Adjustment/Cleaning	Zoom Fine Adjustment	X/Y each: -1.0 to +1.0% (in 0.1% increments); 0%*
	Saddle Stitcher Staple Repositioning	Start
	Saddle Stitch Position Adjustment	position: -2.0 to 2.0 mm (0.25-mm increments); 0 mm*
	Double Staple Space Adjustment	70 to 150 mm (1-mm increments); 120 mm*
	Exposure Recalibration	Light-Dark/9 steps/5 steps*
	Feeder Cleaning	Start key
	Wire Cleaning	Start key
Mail Box Settings	Box Set/Store	Box No.: 0 to 99 Store Box Name (24 characters, max.) Password (7 characters, max.) Doc. Auto Erase: 1, 2, 3, 6, 12 hr; 1, 2, 3, 7, 30 days; none, 3 days* Initialize
	Photo Mode	On/Off*
	Standard Scan Settings	Store/Initialize
Report Settings	User's Data List	Print

* Factory default.

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Level 1 item	Level 2 item	Level 3 item
System Settings	System Manager Settings	System Manager ID (7 characters, max.)
		System Password (7 characters, max.)
		System Manager (32 characters, max.)
		E-mail Address (64 characters, max.)
		Contact Information (32 characters, max.)
		Comment (32 characters, max.)
	Dept. ID Management	On/Off*
		(Store Dept. ID/Password, Print Totals, Accept Jobs With Unknown ID)
	Remote UI	On*/Off
	Device Information Settings	Device name (32 characters, max.)
		Location (32 characters, max.)
	Network Settings	TCP/IP Settings
		IP Address Setting, DNS Server Setting, PING Command, WINS Configuration, LPD Banner Page (On/Off*)
		NetWare Setting
		Use NetWare (On/Off*)
		AppleTalk Setting
		Use AppleTalk (On/Off*)
		SMB Setting
		Server, Printer, Workgroup, Comment, LM Announce (On/Off*)
		Use spool function (ON*, OFF)
		Recognize connection (ON*, OFF)
		Startup Time Settings (0 to 300 sec; 60 sec)
		Ethernet Driver Settings
		Auto Detect (On*/Off), Communication Mode, Ethernet Type, MAC Address

* Factory default

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CHAPTER 2

NEW FUNCTIONS

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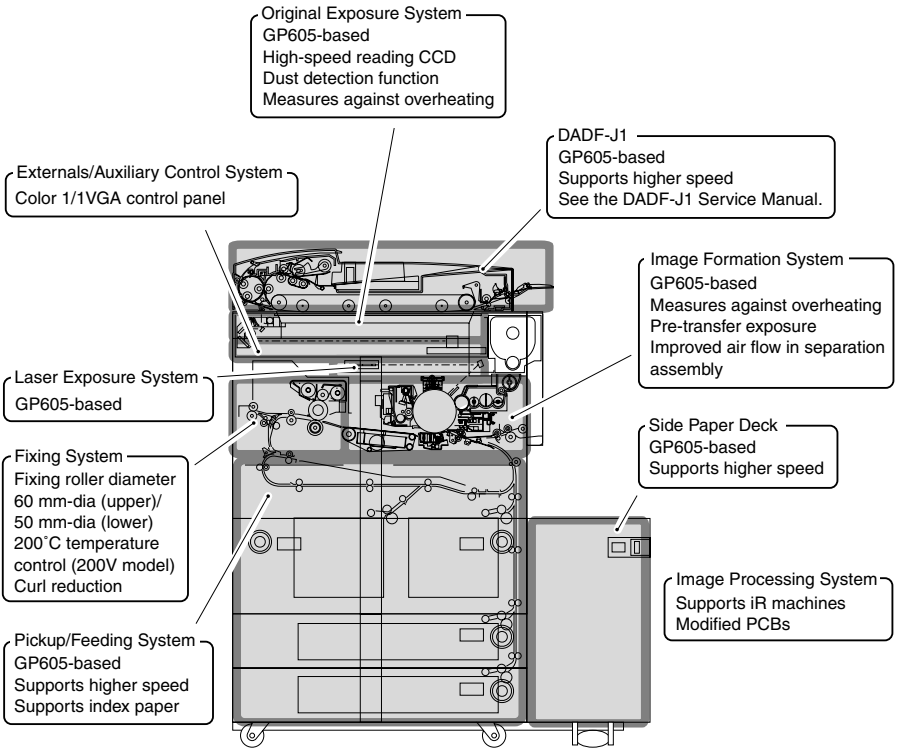
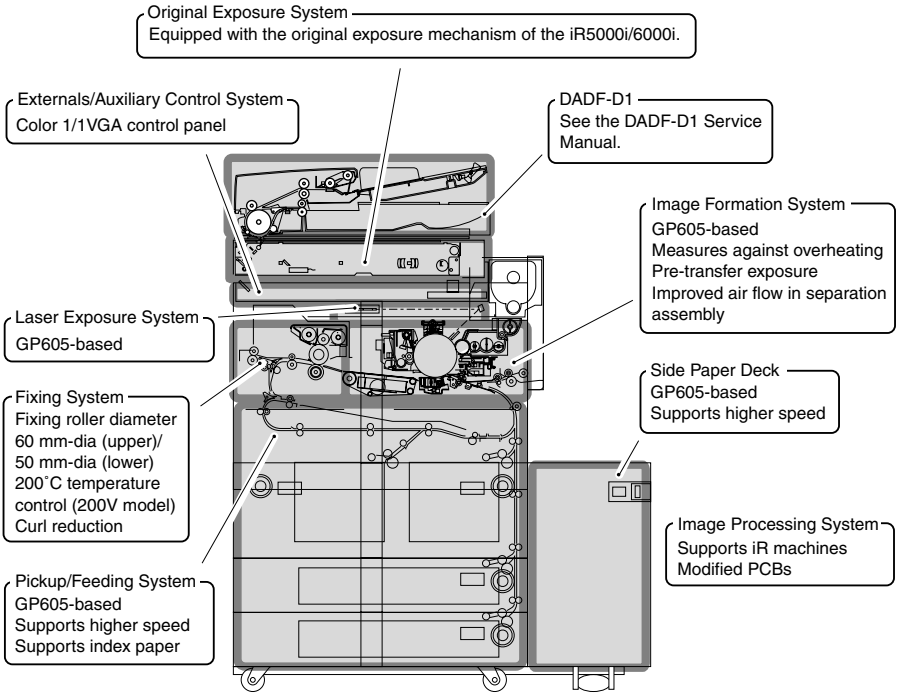
1 Basic Construction

1.1 Basic Construction Outline (iR8500)



F02-101-01

1.2 Basic Construction Outline (iR7200)



F02-102-01

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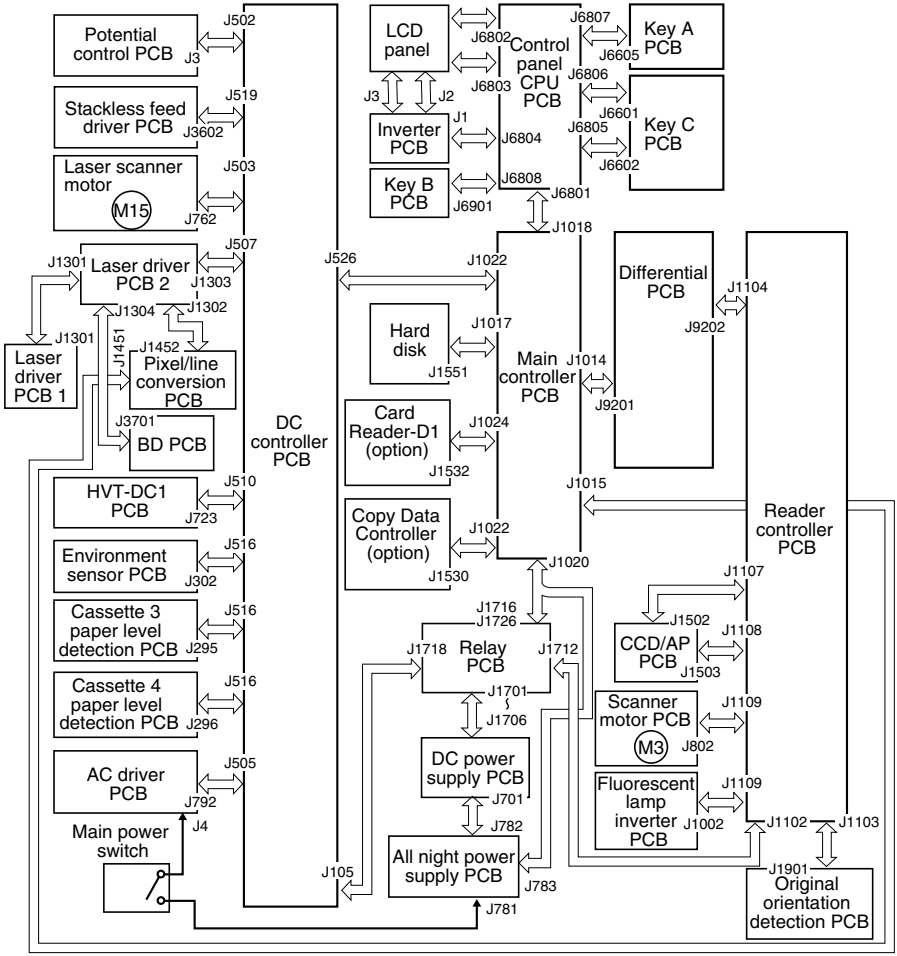
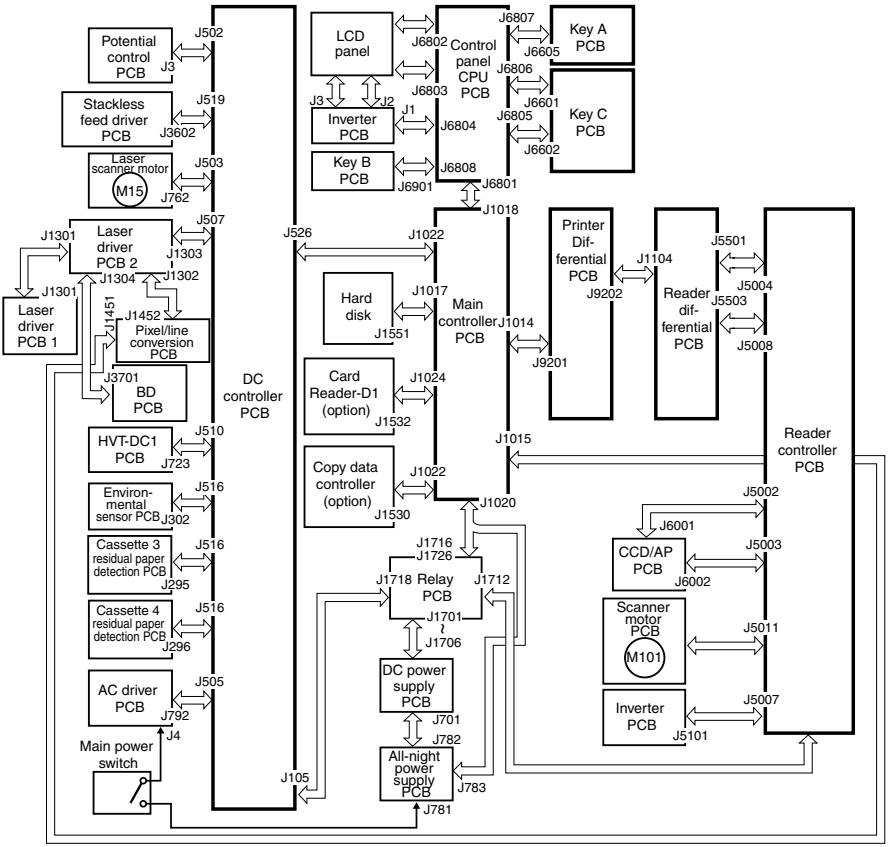
1.3 Inputs to and Outputs from the Major PCBs (iR8500)



Note: The ⟺ in the figure indicates principal connections, NOT the flow of signals.

F02-103-01

1.4 Inputs to and Outputs from the Major PCBs (iR7200)



Note: The ⟺ in the diagram indicates major wiring between PCBs, not the direction of signals.

F02-104-01

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2 Original Exposure System (iR8500)

2.1 Outline

The major changes made to the original exposure system are as follows:

- Enlargement/Reproduction
- 4-channel high-speed reading CCD
- CCD adjustment
- PCB arrangement
- ADF mechanism (new)

For others, see T02-202-01 for a table of differences

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2.2 Changes in the Original Exposure System

Unit/location	Changes from GP605	Purpose	Remarks	Reference
Reading method	Change in scanning speed at 100% copying: 450 mm/sec	To support higher speed	In GP605 260 mm/sec	2.3 Enlargement/Reduction Method
	Change in reproduction range: 25% to 400% (in combination with digital processing)	To support higher speed		2.3 Enlargement/Reduction Method
Reader unit	Addition of a scanner motor fan	To prevent overheating of the scanner motor		2.4 Preventing Overheating of the Scanner Motor
	Addition of transformer power PCB	To stabilize the inverter power supply		2.6 Stabilizing the Scanning Lamp
Reader controller	Location of the reader controller where the image processor PCB was found			2.5 Arrangement of PCBs
	Connection (inside the machine) of the reader controller unit and the controller by a communication cable	To support new PCB composition		
	Addition of a dust detection function	To prevent image faults		2.8 Detecting Dust in Stream Reading Mode
ADF	Addition of a detection function (open/closed) to the ADF	To prevent wrong detection		2.7 Detecting the State (open/closed) of the ADF

T02-202-01

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2.3 Enlargement/Reduction Method

Change	iR8500	GP605
Scanning speed in Direct	450 mm/s	260 mm/s
Difference in range	By optical means, between 25% and 400%; in combination with digital processing, (between 25% and 49.9% in fixed mode) (between 25% and 84.9% in stream reading mode; ADF use)	Between 25% and 400% by optical means (no digital processing)

The machine is designed to use a higher scanning speed to keep up with the higher printing speed. Under specific conditions, it involves digital processing to enlarge/reduce images, thereby increasing scanning speed while allowing the scanner motor to operate at the range of speed of the GP605.

When the ADF is used, the copying operations will normally be in stream reading mode; at a 200% to 400% ratio, however, fixed mode will be used.

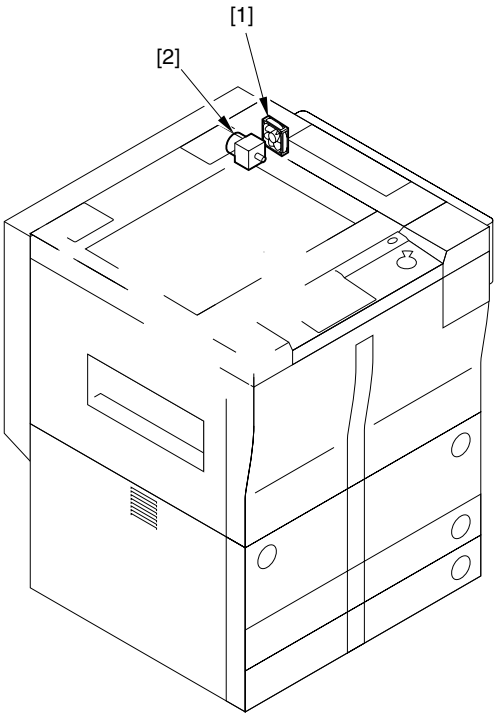
In book mode, all copying operations will be fixed mode.

Digital processing is used in combination under the following conditions:

- in fixed mode, between 25% and 49.9%
- in stream reading mode, between 25% and 84.9%

2.4 Preventing Overheating of the Scanner Motor

The machine is equipped with a scanner motor cooling fan to prevent overheating of the scanner motor.



[1] Scanner motor cooling fan
[2] Scanner motor

F02-204-01

The fan is used to cool the scanner motor in conjunction with fixed mode used under specific conditions as follows:

Operating mode	Fan rotation control
Stream reading or stand-by	at rest
Fixed mode for reduction between 60% and 68.9%	full speed
Fixed mode other than above	half speed

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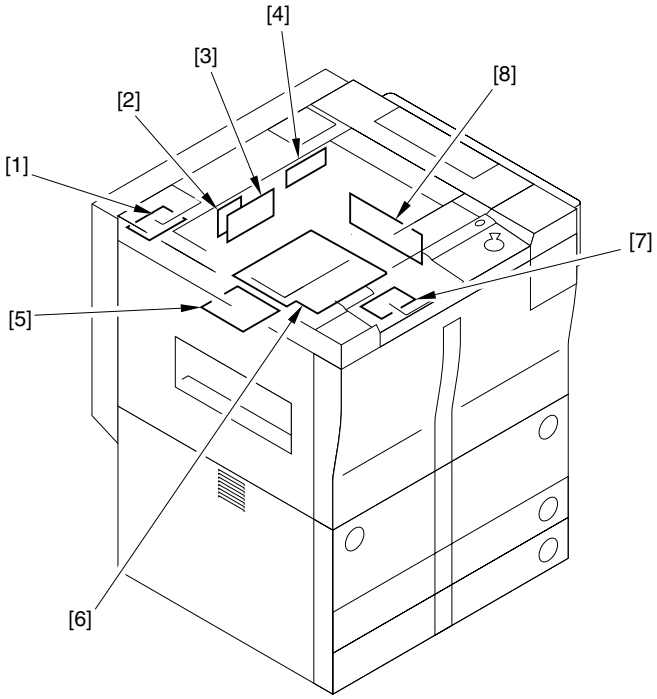
2.5 Arrangement of the PCBs

The PCBs in the reader unit are arranged as follows:



[1] Transformer power PCB
[2] Intersity control PCB
[3] Fluorescent inverter PCB
[4] Scanner motor driver PCB
[5] Original orientation detection PCB
[6] Reader controller PCB
[7] Laser scanner motor driver PCB
[8] CCD/AP PCB

F02-205-01

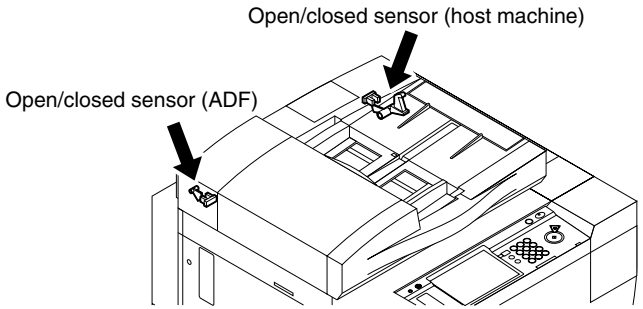
The reader controller PCB is arranged where the image processor PCB was located in the past. The reader controller PCB is connected with the main controller PCB by means of a communication cable inside the machine; as such, the reader unit may be connected using the same interface.

2.6 Stabilizing the Scanning Lamp

To stabilize the intensity of the scanning lamp, a transformer power PCB has been added, and the voltage supplied to the inverter power supply has been increased from 38 to 40 V.

2.7 Detecting the State (open/closed) of the ADF

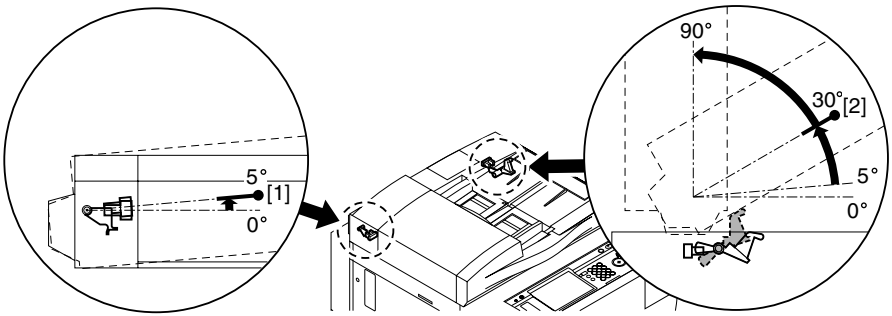
As in the case of the GP605, the ADF uses the open/closed sensor (going ON at 30°) of its host machine; in addition, on the other hand, it is equipped with an open/closed sensor (going ON at 5°) inside it. The state (open/closed) of the ADF is checked with reference to the states of these two sensors (If, for some reason, the state of the ADF sensor cannot be checked, the state of the sensor in its host machine will be used, as in the case of the GP605).



F02-207-01

- When the ADF Is Opened

The ADF's sensor goes ON when it is lifted to 5° or more [1], causing the host machine to assume that the ADF is open. At this time, the host machine clears the size of an original that has automatically been detected, assuming that the original has been removed. Then, when the ADF is opened farther to 30° or more [2], the sensor in the host machine goes ON, enabling original size auto detection.



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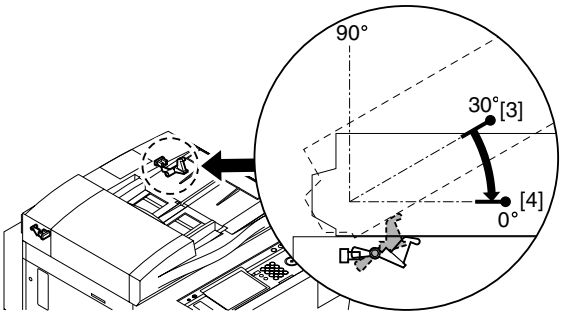
• When the ADF Is Closed

The sensor in the host machine goes ON when it is brought down to 30° or less [3]. At this time, the host machine assumes that the ADF is about to be closed; this state remains for 5 sec and then, the host machine assumes that the ADF has been closed [4].



F02-207-03

Memo

Detecting the Size of Originals

• GP605

It is assumed that the ADF is fully closed 3 sec after the sensor in the host machine goes ON. Based on this assumption, the state of the sensor when the sensor in the host machine goes ON and the state of the original size sensor 3 sec thereafter are compared to find out the size of the original placed on the copyboard glass.

This also means that, if the user fails to close the ADF within 3 sec after the sensor in the host machine has gone ON, the host machine can wrongly detect the size of the original (wrongly assuming the presence of an A3/LGR original).

• iR8500/iR7200

The iR8500 and iR7200 allows 5 sec for the detection of the size of originals to avoid affecting the first copy time (It take 2 sec to turn on the fluorescent lamp).

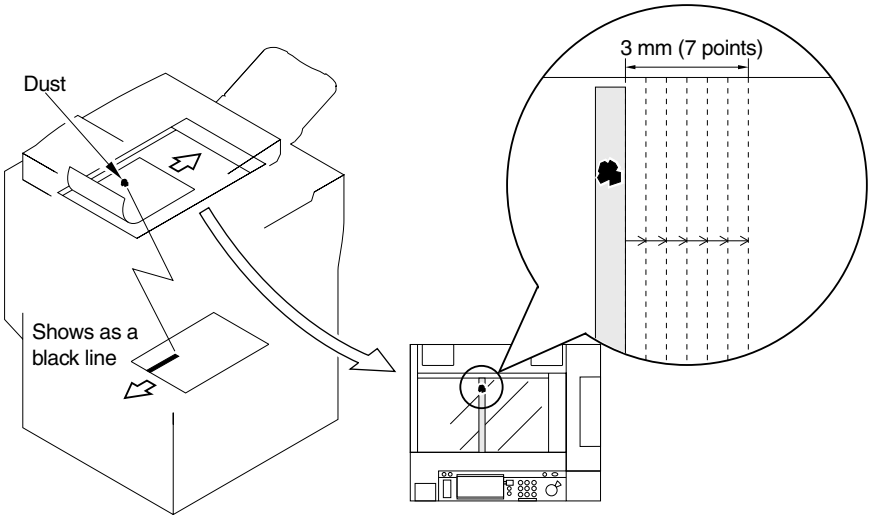
2.8 Detecting Dust in Stream Reading Mode

In addition to the stream reading position, the machine has six reading points at intervals of 0.5 mm (six points each for small-size and large-size sheets) used to avoid areas where dust may exist. In all, there are seven reading points for small-size and seven for large-size.

Normally, stream reading takes place at the same point as in the GP605. If dust is found, the point of stream reading is changed to avoid reproducing the dust in images. At each end of a stream reading job, the ADF belt is rotated idly to execute stream reading; if a black line is detected, the presence of dust will be assumed.

When the presence of dust is detected, the present stream reading point is cleared, and dust detection is executed by returning to the point of reference on the left edge. If dust is detected, the stream reading position is shifted by a single point (= 0.5 mm) to the right, and dust detection is executed once again. If no dust is detected at the new point, the selected stream reading point will be used.

If, however, dust is detected also at the new stream reading point, dust detection is executed once again after a shift to a new point. If dust is detected at all seven points, a message to this effect will be indicated: “The plate glass is dirty.” The message will remain until the ADF is opened and the copyboard glass is cleaned; while the message remains, the machine will operate in fixed reading mode only.



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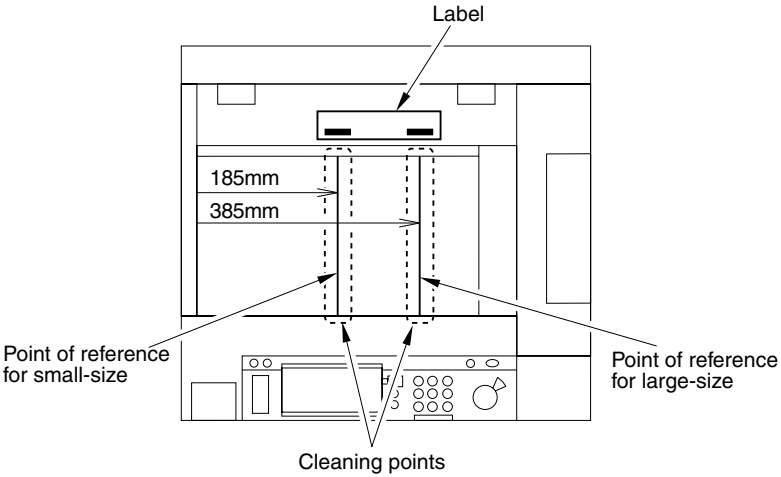
If the message is indicated, advise the user to clean the copyboard glass where the CCD stops. A label is attached to indicate the stream reading points for small-size and large-size at the rear of the copyboard glass.

When a jam occurs, dust detection will not be executed at the end of a job. If the job is cancelled, dust detection will be executed at the end of the job.



F02-208-02

Any of the following conditions can cause the Clean message to appear in the absence of dust on the glass:
• The feeding belt of the ADF is excessively solid.
• 'CCD-ADJ' or 'LUT-ADJ' is not executed properly.
If such is the case, clean the belt (with alcohol) and execute 'CCD-ADJ' or 'LUT-ADJ' once again.

2.9 Disassembly/Assembly (iR8500)

The mechanical characteristics of the machine are as described herein; disassemble/assemble the machine as instructed and with the following in mind:

1. ⚠ Before starting any disassembly/assembly work, turn off the main power switch, and disconnect the power plug.
2. Unless otherwise specifically instructed, assemble the machine by reversing the steps used to disassemble it.
3. Identify the screws by type (length, diameter) and location.
4. To protect against static charges, one of the mounting screws of the rear cover comes with a toothed washer. Be sure not to leave out the washer when assembling the machine.
5. To ensure electrical continuity, the mounting screw for the grounding wire and the varistor comes with a washer. Be sure not to leave out the washer when assembling the machine.
6. As a rule, do not operate the machine with any of its parts removed.
7. When sliding out the duplex feeder unit or the fixing assembly, be sure to turn off the front cover switch or the power switch.

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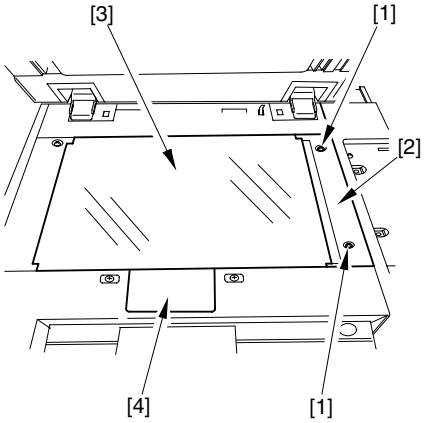
2.9.1 No. 1 Mirror Base Assembly

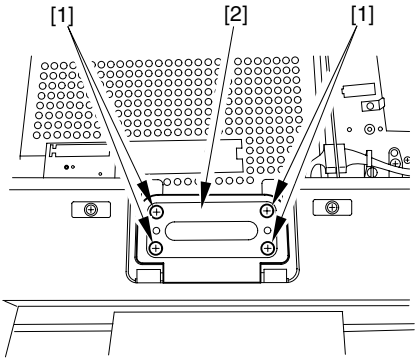
a. Remove the Scanning Lamp/Scanning Lamp Heater

1) Remove the 2 screws [1], and detach the right glass retainer [2].
2) Shift the copyboard glass [3] to the right to detach; then, detach the scanning lamp cover [4].



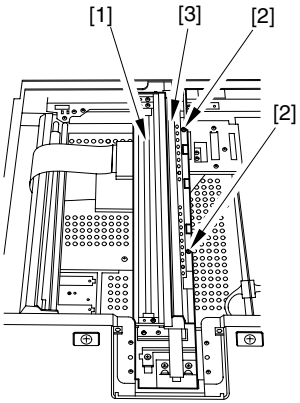
F02-209-01

3) Remove the 4 screws [1], and detach the original lamp inside cover [2].



F02-209-02

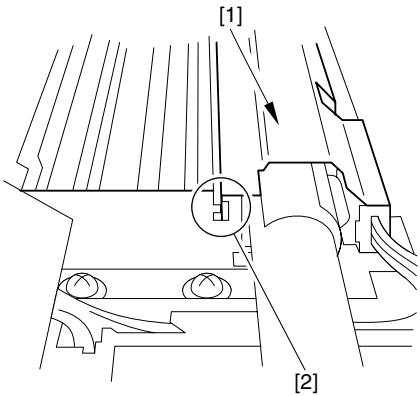
4) Move the No. 1 mirror base [1] to where the scanning lamp mirror inside cover has been removed; then, remove the 2 screws [2], and detach the anti-reflection plate [3].



F02-209-03

When moving the mirror base, be sure not to touch the mirror or the lamp or impose force on them to avoid dirt or damage.

When mounting the anti-reflection plate, be sure to fit the plate firmly in the cut-in ([2] at front, [3] at rear) of the No. 1 mirror base. Also, be sure that the connector in step 5) is firmly to the anti-reflection plate.



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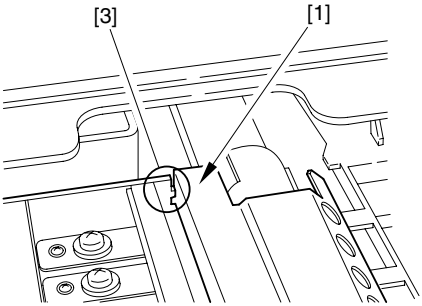

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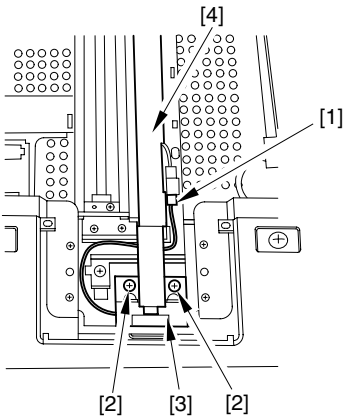
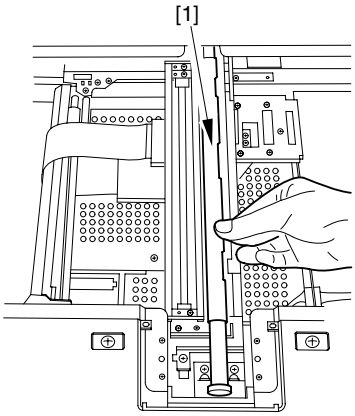
5) Disconnect the connector [1], and remove the 2 screws [2]; then, detach the scanning lamp [4] from the electrode plate (front) [3].



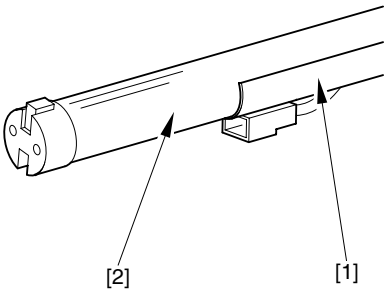
F02-209-06

6) Remove the scanning lamp [1] (w/ scanning heater) to the front.



F02-209-07

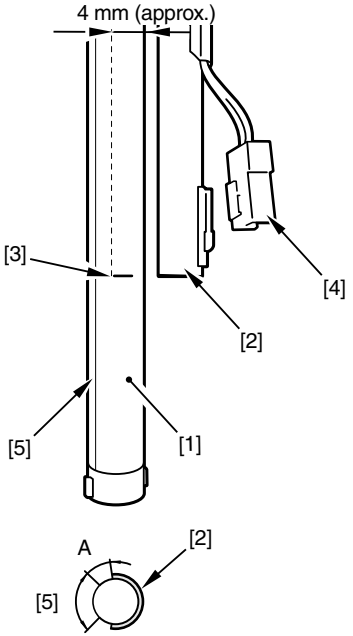
7) Detach the scanning lamp heater [1] from the scanning lamp [2].



F02-209-08

b. Points to Note When Replacing the Scanning Lamp

- Do not work if the surface of the scanning lamp is hot.
- Do not leave fingerprints on the surface of the scanning lamp.
- If the surface of the scanning lamp is soiled, dry wipe it.
- When mounting the scanning lamp heater [2] to the scanning lamp [1], be sure to fit it with reference to the marking [3] (The connector [4] of the scanning lamp heater must be to the front of the machine).
- Also, make sure that the distance A between the top edge of the scanning lamp and the top edge of the light opening [5] is about 6 to 7 mm when viewed from the side.
- When mounting the scanning lamp to the machine, be sure not to touch the light opening [5].
- Be sure to mount the scanning lamp so that the notation/marking is to the upper front of the machine.



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c. When Replacing the Scanning Lamp

1) Check to make sure that the Execute/Memory lamp in the control panel is OFF, and turn off the main power switch.
2) Disconnect the power plug from the power outlet.

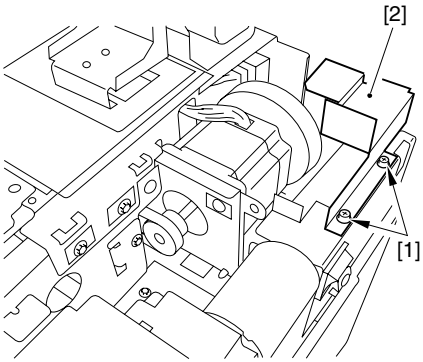
The machine remains powered as long a the power plug is connected. Be sure to disconnect the power plug from the power outlet without fail.

3) Replace the scanning lamp.
4) Assemble the machine, and connector the power plug to the power outlet; then, turn on the main power switch.
5) Execute the following in service mode in sequence:
   1. COPIER>FUNCTION>CCD>CCD-ADJ
   2. COPIER>FUNCTION>CCD>LUT-ADJ
6) Inplement the service mode described below to the service sheet which is to be kept in the service log book case.
   COPIER>FUNCTION>MISC-P>LBL-PRNT
7) Turn off and then on the main power switch.

2.9.2 Scanner Drive Assembly

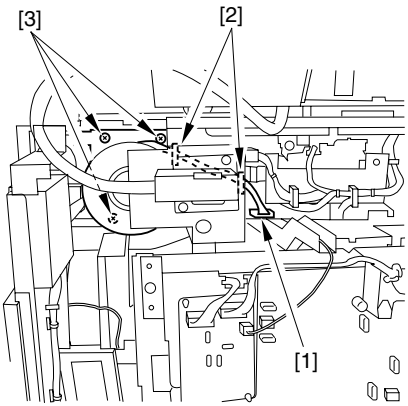
a. Removing the Scanner Motor

1) Remove the right upper cover (See 10.4.1.i).
2) Remove the rear cover (See 10.4.1.e).
3) Remove the rear upper cover.
4) Remove the two screws [1], and detach the rear cover support plate [2].



F02-209-10

5) Disconnect the connector [1], and free the harness from the 2 edge saddles [2].
6) Remove the 3 screws [3].

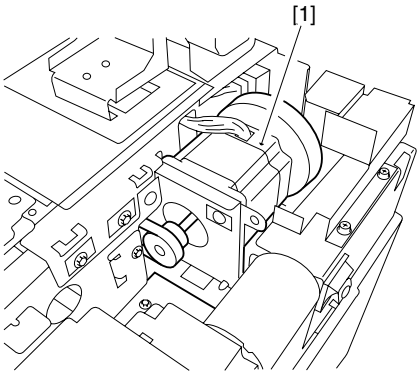


F02-209-11

7) Slide out the scanner motor unit [1] to the front, and detach the belt; then, detach the scanner motor unit.

REF.

When mounting it, set the tension of the belt to 10 ±2N (1 ±0.2 kgf).



F02-209-12

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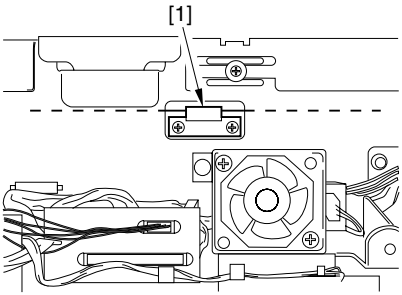
b. Scanner Drive Cable

b-1 Adjusting the Tension of the Scanner Drive Cable

When routing the scanner drive cable, be sure to have a mirror positioning tool (FY9-3040-000) ready.

1) Remove the ADF.
2) Remove the copyboard glass.
3) Remove the control panel (See 10.4.2.a).
4) Remove the rear cover and the rear upper cover.
5) Remove the inverter PCB unit (See 2.9.3.b).
6) Move the No. 1 mirror base to where the cable fixing [1] of the No. 1 mirror base is in view through the hole in the machine side plate.



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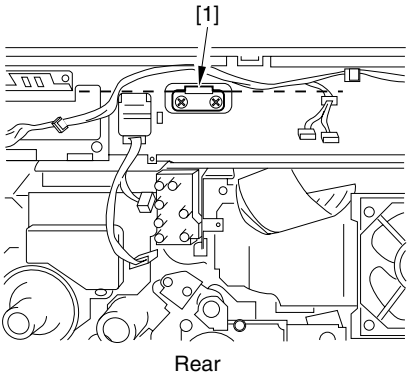
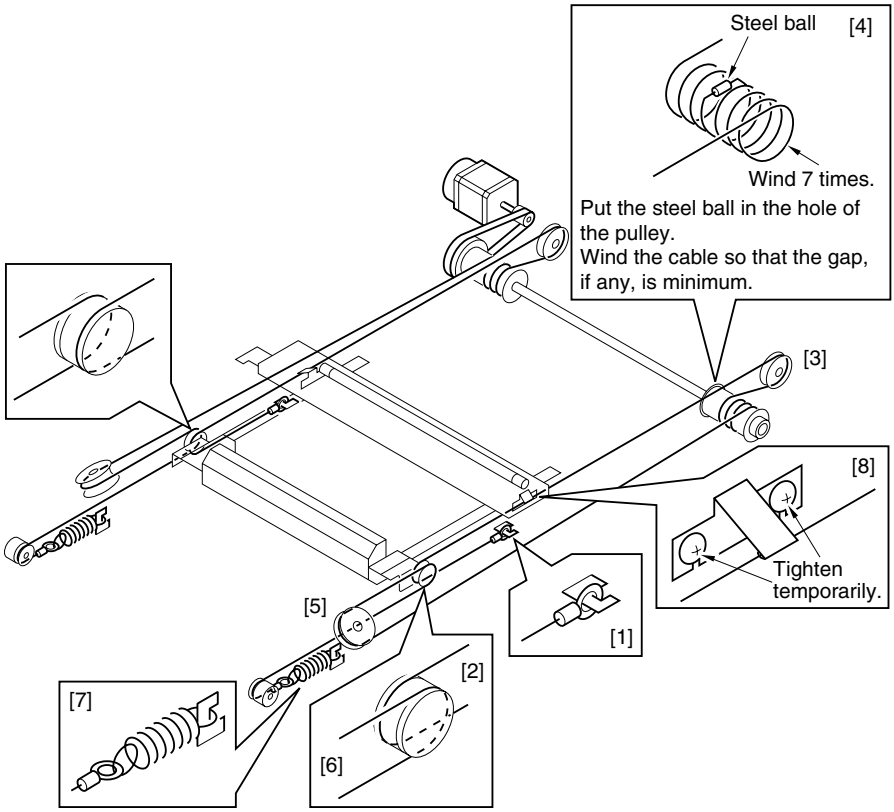


F02-209-14

7) Fit the scanner cable on the pulley and the hook as indicated.



F02-209-15

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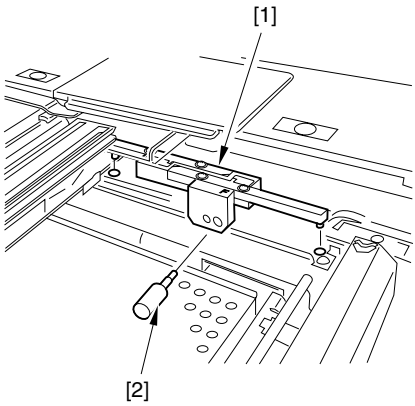
8) Fit the mirror positioning tool [1] between the No. 1 mirror base and the No. 2 mirror base; then, fit the pin [2] attached to the mirror positioning tool.

(front)



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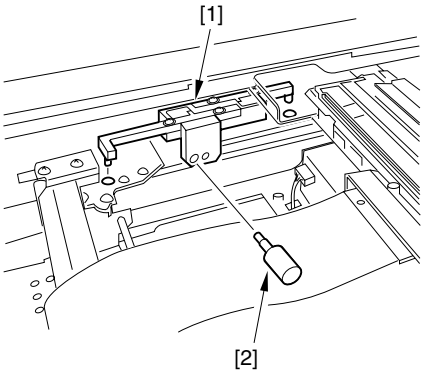
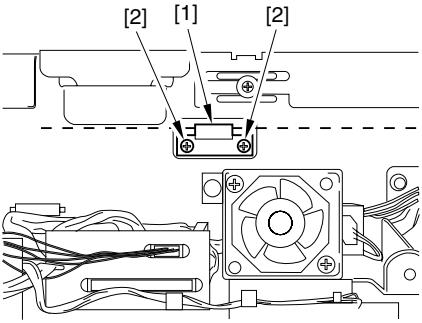
(rear)



F02-209-17

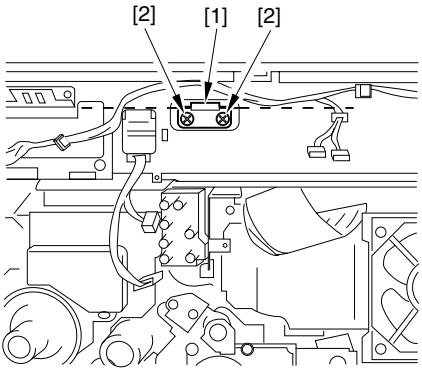
9) Secure the cable fixing [1] that was temporarily fixed in place in step 6) by tightening the 2 screws [2] from the opening in the side plate.

(front)



F02-209-18

(rear)



F02-209-19

10) Detach the mirror positioning tool.
11) Reverse steps 1) through 4).

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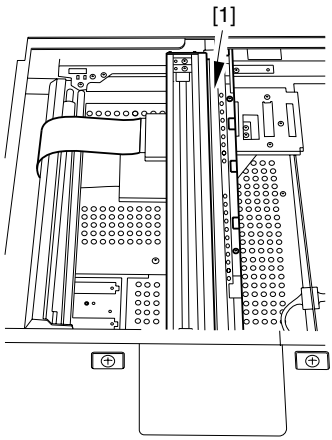
b-2 Removing the No. 1 Mirror Case Flexible Cable

Do not disconnect the connector (connected to the No. 1 mirror base) of the flexible cable unless you are replacing the No. 1 mirror base (Clean the mirror without detaching the cable).

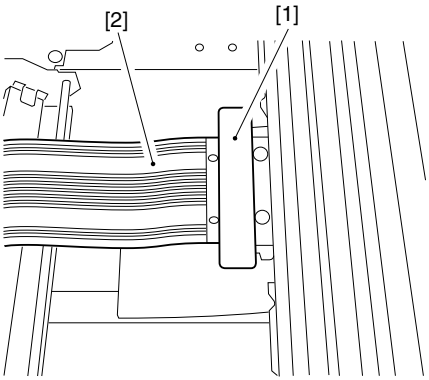
1) Remove the right glass retainer (2 screws).
2) Remove the copyboard.
3) Move the No. 1 mirror base [1] to the center.

When moving the mirror base, be sure not to touch the mirror or the lamp or impose force to avoid dirt or damage.



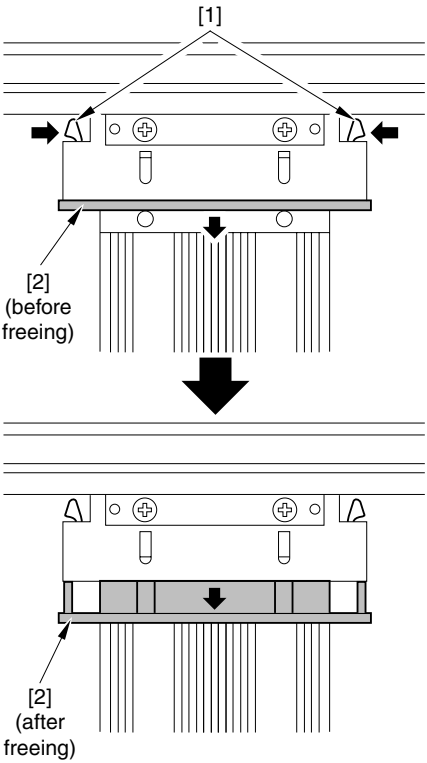
F02-209-20

4) Peel off the Warning label [1] from the flexible cable [2].



F02-209-21

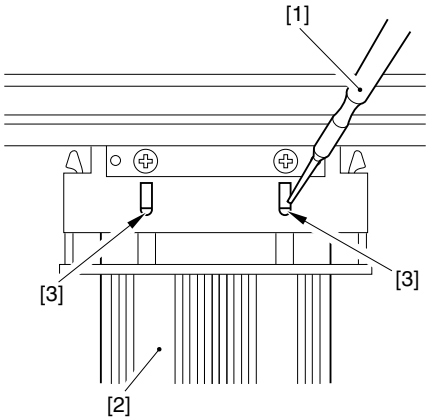
5) Push in the claw [1] inside to free the flexible cable fixing plate [2] of the connector.



F02-209-22

6) Using a small screwdriver [1], push the 2 protrusions [3] used to hook the flexible cable [2]) to disconnect the cable from the connector.

- When mounting it, butt and keep the flexible cable against the rearmost, and push in the fixing plate while holding it level.
- When pushing in the fixing plate, take care not to touch the reflecting plate.



F02-209-23

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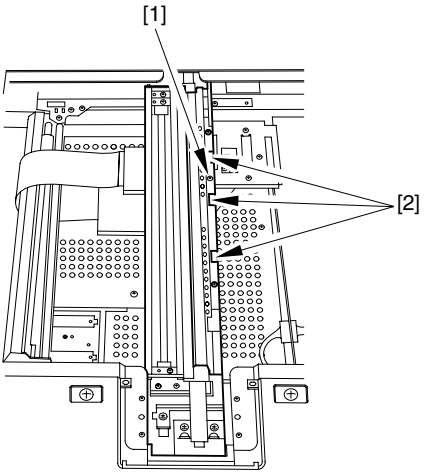
2.9.3 PCBs

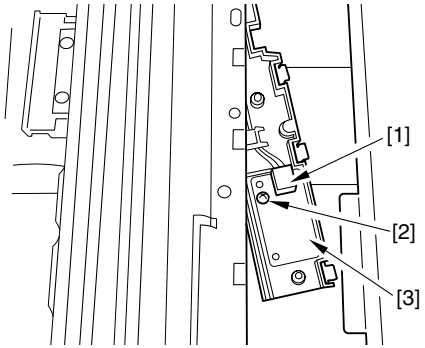
a. Removing the Light Adjustment PCB

1) Remove the copyboard glass.
2) Remove the screw [1] from the No. 1 mirror base assembly; then, while pushing down the claws [2], detach the light adjustment PCB holder.



F02-209-24

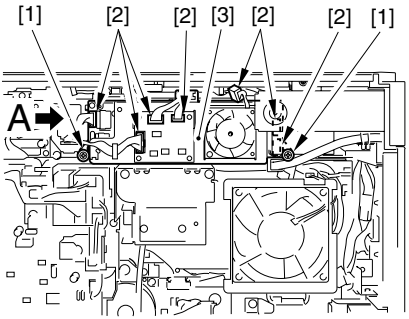
3) Disconnect the connector J165 [1], and remove the screw [2]; then, detach the light adjustment PCB [3].



F02-209-25

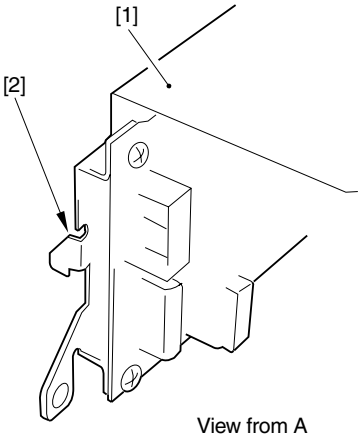
b. Removing the Inverter PCB

1) Remove the rear cover (See 10.4.1.e.).
2) Remove the rear upper cover (2 screws)
3) Remove the inverter cooling fan duct.
4) Remove the 2 screws [1], and disconnect the 7 connectors [2].



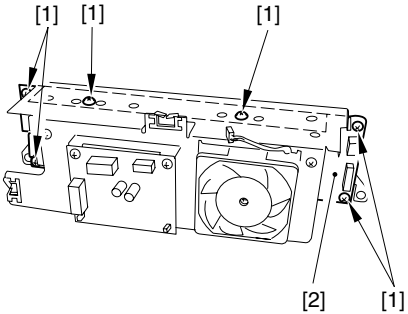
F02-209-26

5) Free the left and right hooks [2] (1 pc. each) on the mounting plate of the inverter unit [1], and detach them upward.



F02-209-27

6) Remove the 6 screws [1], and detach the inverter PCB [2].



F02-209-28

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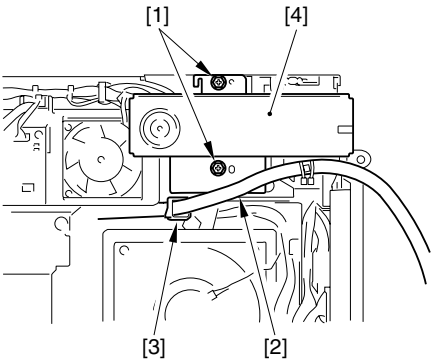
c. Removing the Transformer Unit

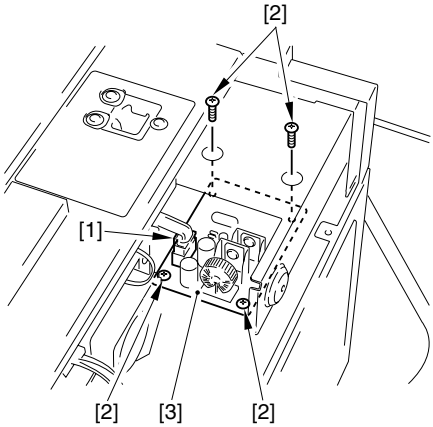
1) Remove the rear cover (See 10.4.1.e.).
2) Remove the rear upper cover (2 screws), and remove the upper left cover (3 screws).
3) Remove the 2 screws [1], and free the reader controller communication cable [2] from the wire saddle [3]; then, detach the transformer unit [4].



F02-209-29

d. Removing the Transformer PCB

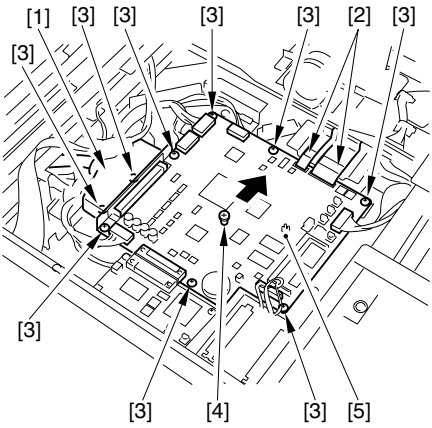
1) Remove the rear upper cover (2 screws).
2) Remove the inverter cooling fan duct (See 8.4.3.h.).
3) Disconnect the connectors [1], and remove the 4 screws [2]; then, detach the transformer PCB [3].



F02-209-30

e. Removing the Reader Controller PCB

1) Remove the original size sensor (See 2.9.4.a.b.).
2) Remove the reader controller cover (See 2.9.4.h.).
3) Disconnect all connectors on the Reader Controller PCB.
4) Disconnect the DDIS cable [1] and the 2 flexible cables [2]; then, remove the 9 screws [3] and the stepped screw [4], to detach the reader controller PCB [5] in the direction of the arrow.



F02-209-31

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f. Points to Note When Replacing the reader controller PCB

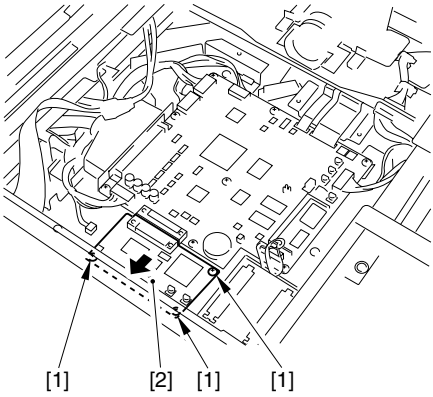
1) Execute the following two items in service mode to print out settings stored under items: COPIER>FUNCTION>MISC-P>LBL-PRNT and COPIER>FUNCTION>MISC-P>USER-PRT.
2) Check to make sure that the Execute/Memory lamp in the control panel is OFF, and turn off the main power switch.
3) Disconnect the power plug from the power outlet.

The machine remains powered as long as the power plug is connected. Be sure to disconnect the power plug from the wall outlet.

4) Replace the reader controller PCB.
5) Assemble the machine, and connect the power plug to the power outlet; then, turn on the main power switch.
6) Execute the following in service mode: COPIER>FUNCTION>CLEAR>R-CON.
7) Turn off and then on the main power switch.
8) Execute the following in service mode: COPIER>FUNCTION>CCD>CCD-ADJ.
9) Enter the settings printed out in step 1) for the following:
   - service mode
     COPIER>ADJUST>ADJ-XY (4 items)
     COPIER>ADJUST>LAMP (1 item)
     COPIER>ADJUST>CCD (29 items)
   - user mode
10) Turn off and then on the main power switch, and execute the following in service mode to generate a service label; keep the service label in the service book case: COPIER>FUNCTION>MISC-P>LBL-PRNT.

g. Removing the Original Orientation Detection PCB

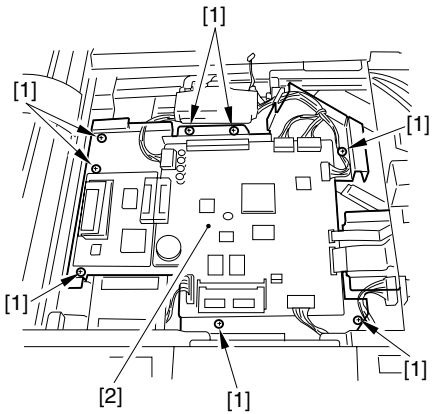
1) Remove the reader controller cover (See 2.9.4.h.).
2) Remove the 3 screws [1], and remove the original orientation detection PCB [2] in the direction of the arrow.



F02-209-32

h. Removing the Reader Controller PCB Unit

1) Remove the reader controller cover (See 2.9.4.h.).
2) Disconnect the 8 connectors of the reader controller PCB, DDIS cable, and 2 flexible cables.
3) Remove the 8 screws [1], and detach the reader controller PCB unit [2].



F02-209-33

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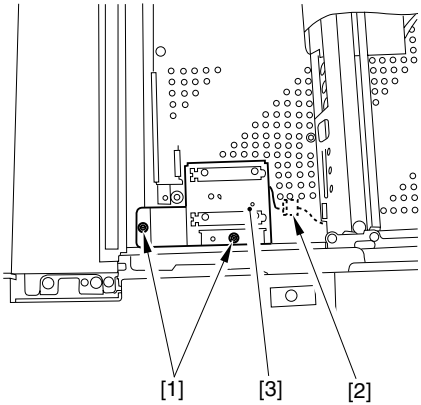
2.9.4 Others

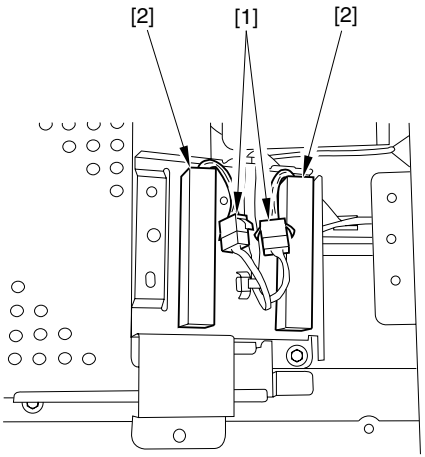
a. Removing the Original Size Sensor 1/2

1) Remove the copyboard glass (See 2.9.1.a.).
2) Move the No. 1 mirror base to the right edge.
3) Remove the 2 screws [1], and disconnect the connector [2]; then, detach the original size sensor unit (front) [3].



F02-209-34

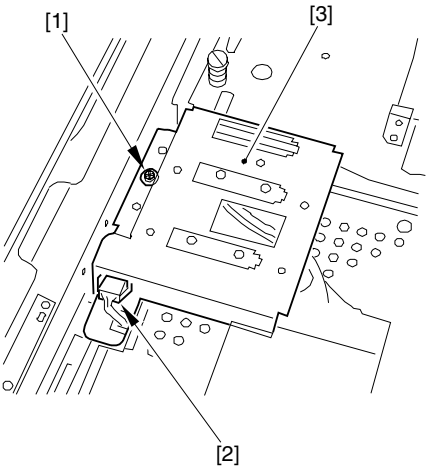
4) Disconnect the connector [1] (1 pc. each), and detach the original size sensor 1/2 [2].



F02-209-35

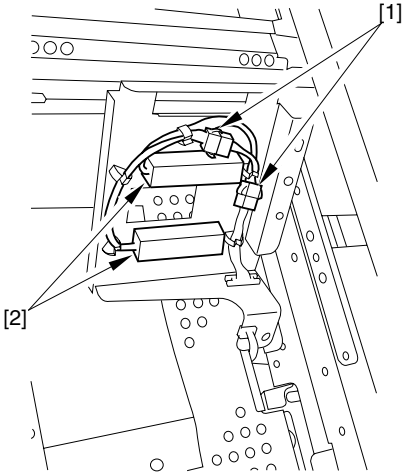
b. Removing the Original Size Sensor 3/4

1) Remove the copyboard glass (See 2.9.1.a.).
2) Move the No. 1 mirror base to the left edge.
3) Remove the screw, and disconnect the connector [2]; then, detach the original size sensor unit (rear) [3].



F02-209-36

4) Disconnect the connector [1] (1 pc. each), and detach the original size sensor 3/4 [2].



F02-209-37

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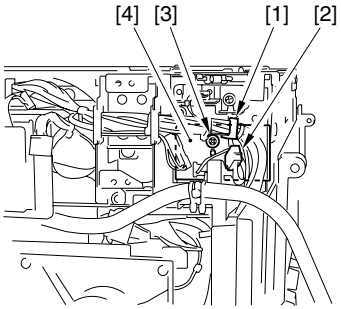
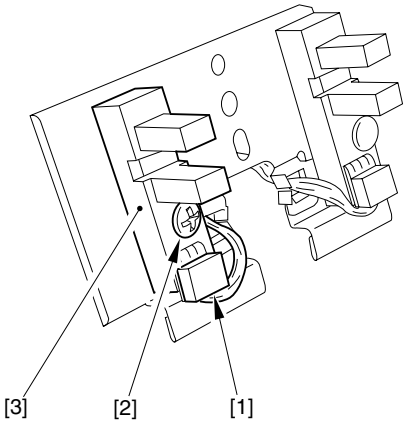
c. Removing the Scanner Home Position Sensor

1) Remove the transformer unit (See 2.9.3.c.).
2) Free the harness from the wire saddle [1]; then, disconnect the connector [2], remove the screw [3], and detach the sensor mounting plate [4].



F02-209-38

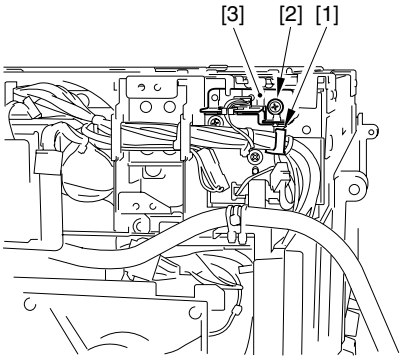
3) Disconnect the connector [1], and remove the screw [2]; then, detach the scanner home position sensor [3].



F02-209-39

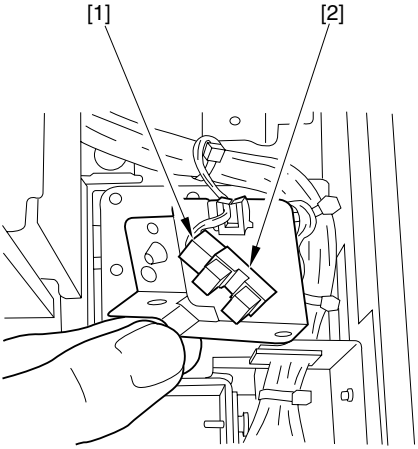
d. Removing the Copyboard Glass Sensor

1) Remove the transformer unit (See 2.9.3.c.).
2) Free the harness from the wire saddle [1], and remove the screw [2]; then, detach the sensor mounting plate [3].



F02-209-40

3) Disconnect the connector [1], and detach the copyboard glass sensor [2].



F02-209-41

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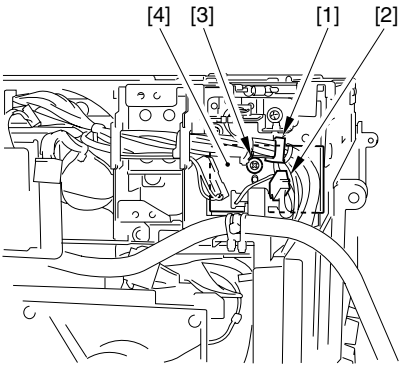
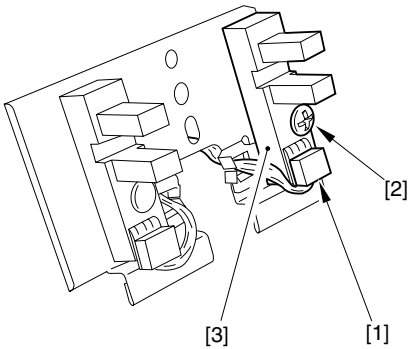
e. Removing the Image Leading Edge Sensor

1) Remove the transformer unit (See 2.9.3.c.).
2) Free the harness from the wire saddle [1]; then, disconnect the connector [2], remove the screw [3], and detach the sensor mounting plate [4].



F02-209-42

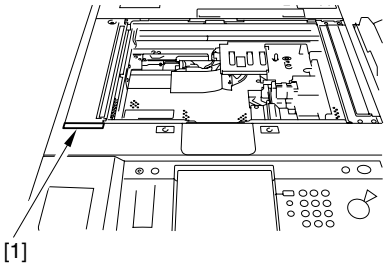
3) Disconnect the connector [1], remove the screw [2], and detach the image leading edge sensor [3].



F02-209-43

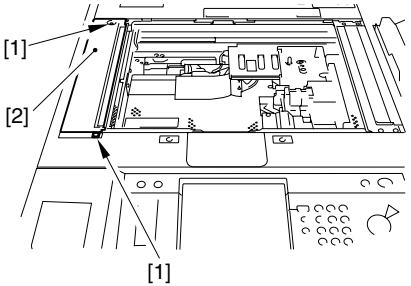
f. Removing the Standard White Plate

1) Remove the copyboard glass (See 2.9.1.a.).
2) Remove the small cover [1] for the standard white plate with a flat-blade screwdriver.



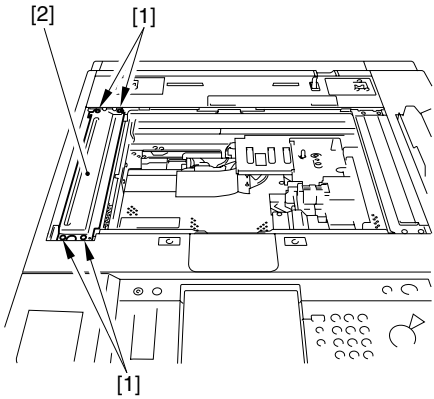
F02-209-44

3) Remove the 2 screws [1], and detach the standard white plate cover [2].



F02-209-45

4) Remove the 4 screws [1], and detach the standard white plate [2].



F02-209-46

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g. When Replacing the Standard White Plate

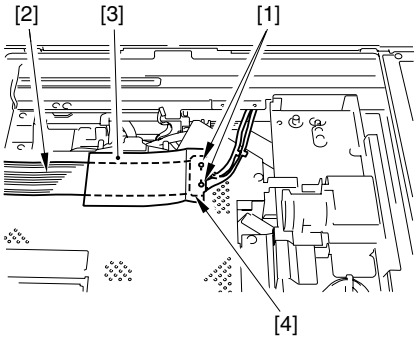
1) Check to be sure that the Execute/Memory lamp in the control panel is OFF, and turn off the main power switch.
2) Disconnect the power plug from the power outlet.

The machine remains powered as long as its power plug is connected. Be sure to disconnect the power plug from the power outlet.

3) Replace the standard white plate.
4) Assemble the machine, and connect the power plug; then, turn on the main power switch.
5) Execute the following in service mode in sequence:
   1. COPIER>FUNCTION>CCD>CCD-ADJ
   2. COPIER>FUNCTION>CCD>LUT-ADJ
6) Inplement the service mode described below to the service sheet which is to be kept in the service log book case.
   COPIER>FUNCTION>MISC-P>LBL-PRNT
7) Turn off and then on the main power switch.

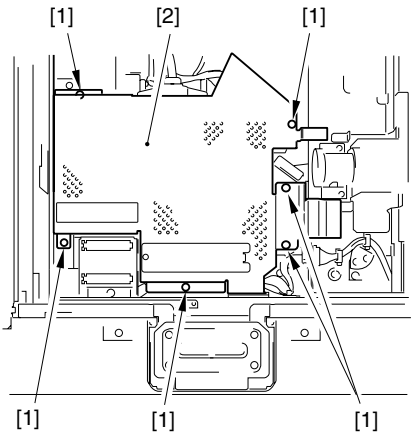
h. Removing the Reader Controller Cover

1) Remove the original size sensor unit (rear) (See 2.9.4.b.).
2) Remove the 2 screws [1], and detach the flexible cable [2] together with the cover sheet [3].
3) Disconnect the flexible cable [2] from the connector [4].



F02-209-47

4) Remove the 6 screws [1], and detach the reader controller cover [2].



F02-209-48

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3 Original Exposure System (iR7200)

3.1 Outline

The major functions of the original exposure system are as follows:

Item	Description
Scanning lamp	Xenon lamp
Original Scanning	In book mode: by moving the scanner. With ADF in use: by stream reading while holding the No. 1 mirror base fixed in position.
Scanner position detection	By scanner HP sensor (PS102)
Reproduction ratio (zoom)	[1] Using the Copyboard: 25% to 400% • In main scanning direction, image processing is performed by the controller unit. • In sub scanning direction, the speed of the No. 1 mirror base is changed (50% or higher), in addition, the image data is processed by the controller unit (lower than 50%). [2] Using the ADF: 25% to 200% • In main scanning direction, the image data is processed by the controller unit. • In sub scanning direction, the speed at which the originals are moved is changed (50% or higher), in addition, the image data is processed by the controller unit (lower than 50%).
Scanner drive control	The No.1/No.2 mirror base is controlled by means of a stepping motor (M3).
Lens	Lens array (fixed in position)
Scanning lamp activation	[1] Turned on by an inverter circuit. [2] Monitored for errors.
Original size detection	[1] In book mode, by a reflection type sensor in sub scanning direction; by a CCD in main scanning direction. [2] With the ADF in use, by the ADF.

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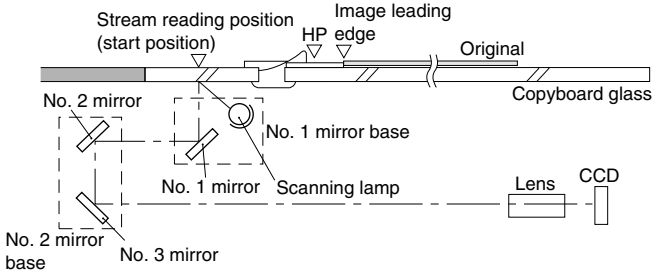
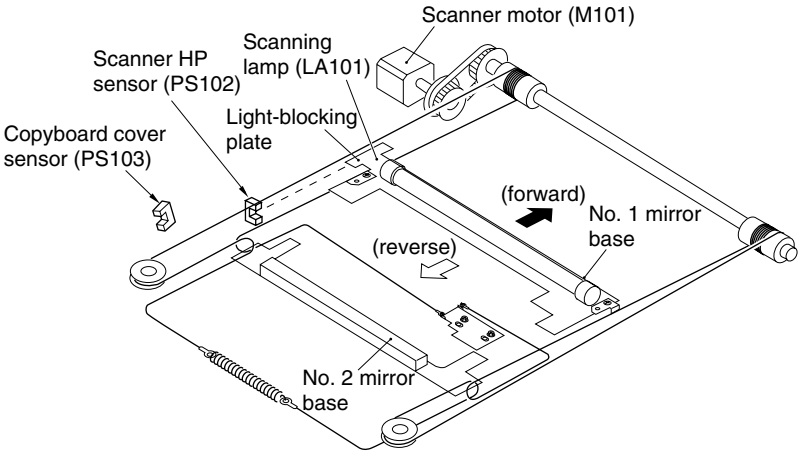
The major components of the original exposure system are as follows:



F02-301-01



F02-301-02

Component	Notation	Description
Scanning lamp	LA101	Xenon lamp (intensity of 70,000 lx)
Scanner motor	M101	2-phase stepping motor (under pulse control)
Scanner HP sensor	PS102	Photointerrupter (detects scanner home position)
Copyboard cover sensor	PS103	Photointerrupter (detects the state (open/closed) of copyboard cover)
Mirror	-	No. 1/No. 2/No. 3 mirror

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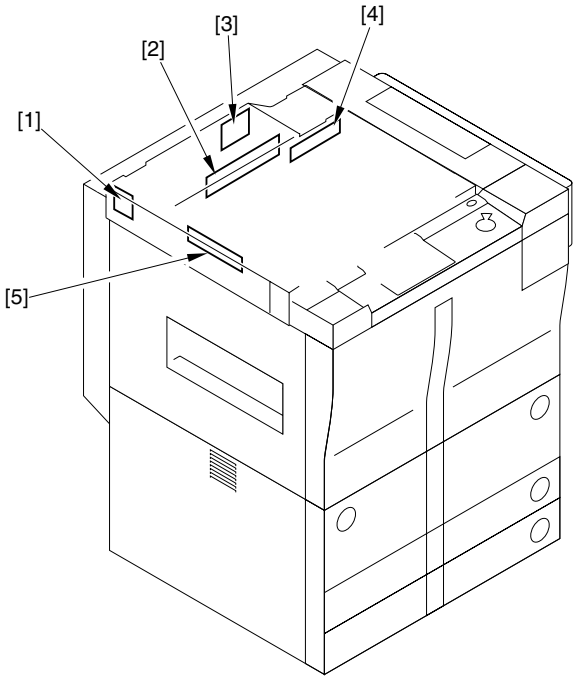
3.2 Change in the Original Exposure System

Unit/Location	Changes to GP605	Purpose	Remarks	Reference
Reader unit	Uses the reader unit of the iR5000i.			3.4 Sequence of Operation of the Original Exposure System 3.8 Detecting the Size of Originals
Method of reading	Reproduction ratios: 25% to 200% (w/ ADF in use) 25% to 400% (in Book mode)			
Reader controller	The reader controller unit and the controller are externally connected by means of a communication cable. Added a dust detection mechanism.			
Original size detection	In book mode, Detection by a reflection type sensor (sub scanning direction). Detection by the CCD (main scanning direction). Detection by the ADF (if ADF is in use).			

T02-302-01

3.3 Arrangement of the PCBs

The PCBs in the reader unit are arranged as follows:



[1] Fuse PCB
[2] Reader controller PCB
[3] Differential PCB
[4] Inverter PCB
[5] CCD/AP PCB

F02-303-01

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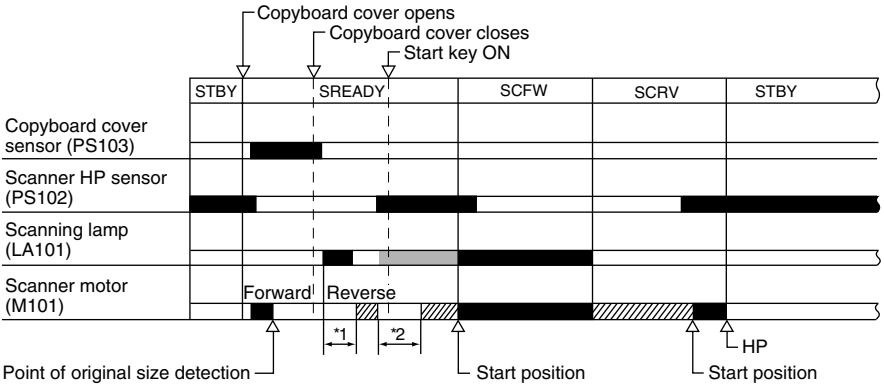
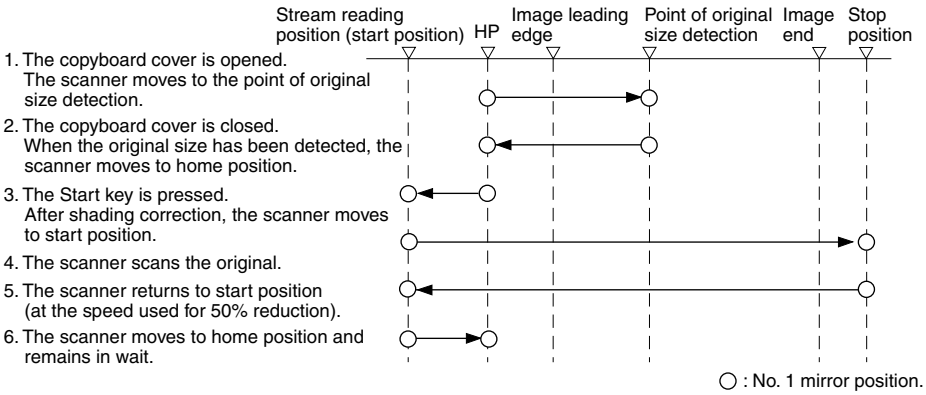
3.4 Sequence of Operations (original exposure)

3.4.1 Book Mode, 1 Original, Copyboard Closed



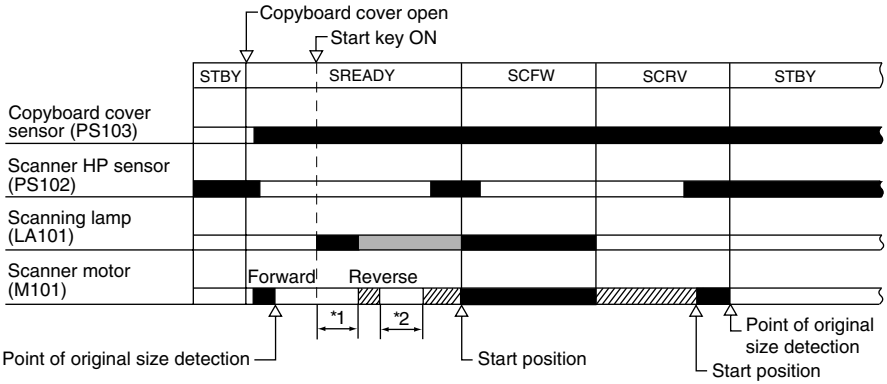
*1: original size detection.*2: shading correction.

F02-304-01



F02-304-02

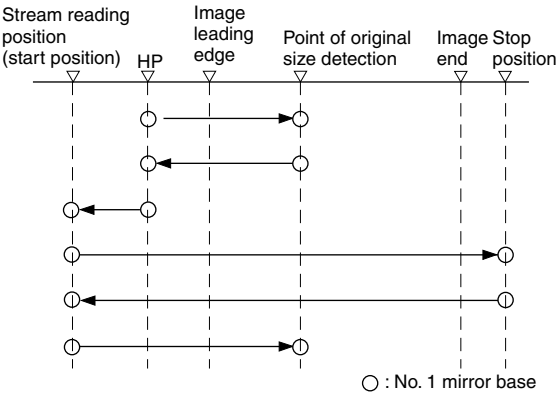
3.4.2 Book Mode, 1 Original, Copyboard Cover Open



*1: original size detection.*2: shading correction.

F02-304-03

1. The copyboard cover is opened. The scanner moves to the point of original detection.
2. The Start key is pressed. After the original size has been detected, the scanner moves to home position.
3. After shading correction in home position, the scanner moves to start position.
4. The scanner scans the original.
5. The scanner returns to start position (at the speed used for 50% reduction).
6. The scanner moves to the point of original size detection.



F02-304-04

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3.5 Enlargement/Reduction (zoom)

[1] When the copyboard cover is used, the ratio may be between 25% and 400% and the speed of the scanner is controlled.
[2] When the ADF is used, the ratio may be between 25% and 200% and the speed of moving the originals is controlled.

3.5.1 Changing the Reproduction Ratio in Main Scanning Direction

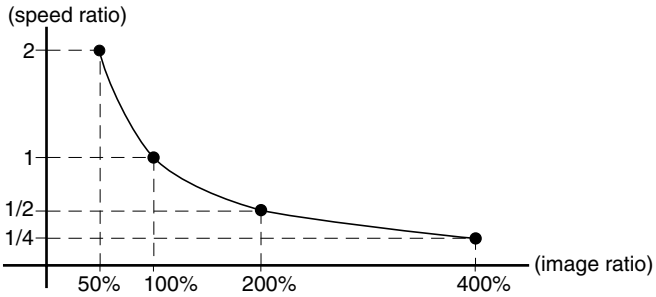
For main scanning direction, the original is read at 100% (for both copyboard and ADF); the size is changed by processing data in the main controller unit.

[1] To reduce, data units are skipped when writing image data to the line memory.
[2] To enlarge, data units are read multiple times when reading image data from the line memory.

3.5.2 Changing the Reproduction Ratio in Sub Scanning Direction

The reproduction ratio in sub scanning direction is changed by controlling the speed of the scanner and the speed at which originals are moved. For a reduction between 25% and 49%, however, the main controller unit also functions to change the ratio by processing data.

[1] To enlarge, the speeds at which the mirror base is moved and the originals are moved are reduced (i.e., slower than in Direct).
For instance, to enlarge at 200%, the originals are read at 1/2 the speed used for Direct.
[2] To reduce to between 50% and 99%, the speeds at which the mirror base is moved and the originals are moved are increased (i.e., faster than in Direct).
For instance, to reduce to 50%, the originals are read twice the speed used in Direct.



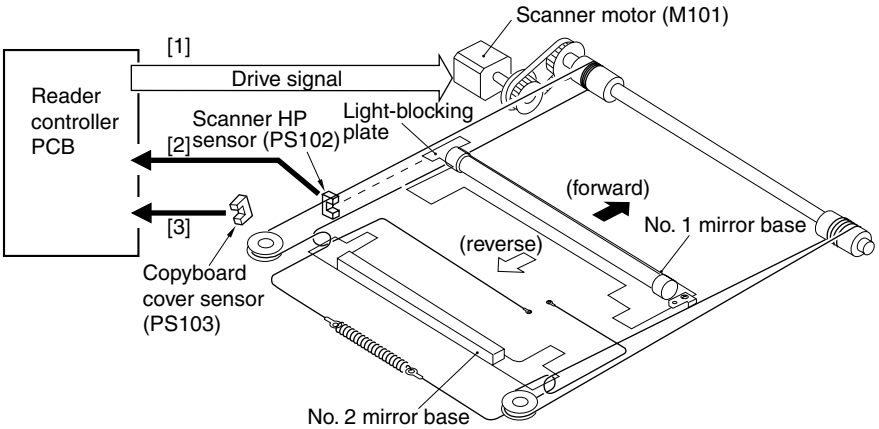
F02-305-01

[3] To reduce to between 25% and 49%, the image data read at 50% and 98% is subjected to skipping (1/2) in the main controller unit.

3.6 Scanner Drive System

3.6.1 Outline

The following parts are associated with the scanner drive system.



F02-306-01

[1] Scanner Motor (M101) Control Signal
Used to turn on/off the motor and to control its direction and speed of rotation.

[2] Scanner HP Sensor (PS102) Detection Signal
Used to make sure that the No. 1 mirror base is at home position.

[3] Copyboard Cover Sensor (PS103) Detection Signal
Used to detect the state (open or close) of the copyboard cover.

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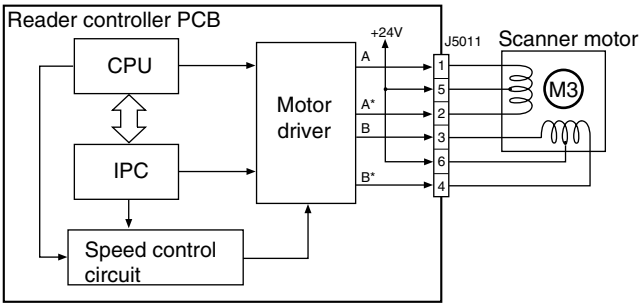
3.6.2 Controlling the Scanner Motor

The system used to control the scanner motor is constructed as follows:

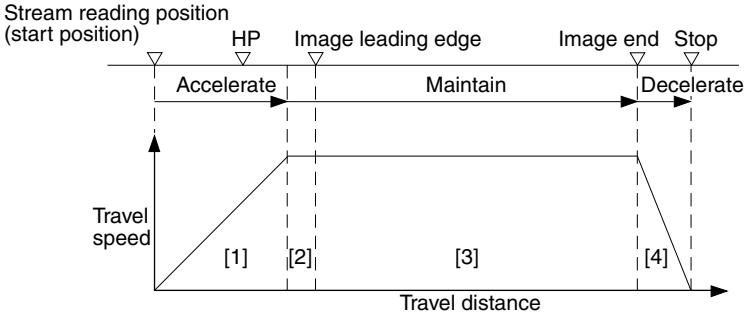
The motor driver turns on/off the scanner motor and controls its direction and speed of rotation in keeping with the signals from the CPU, IPC, and speed control circuit.



F02-306-02

a. Controlling the Motor When Scanning an Image

When scanning an image, the motor is controlled as follows, thereby controlling the movement of the No. 1 mirror base unit:



[1] Acceleration: Used to accelerate until the speed most appropriate to the read ratio is attained.

[2] Approach run: Used to ensure that speed stabilizes.

[3] Image read: Used to read the image at a specific speed suited to the read ratio.

[4] Deceleration: Used to enable the scanner to speed down and stop promptly, starting at the end of the image.

F02-306-03

b. Reversing the Scanner After Scanning in Main Reading Direction

When the image has been scanned, the No. 1 mirror base is moved in reverse to home position at the speed used for 50% reduction, regardless of the ratio being used.

Error

E202 (HP detection error)

[1] The No. 1 mirror base does not reach the HP sensor within a specific period of time.

[2] The HP sensor identifies the presence of the No. 1 mirror base when the No. 1 mirror base should have been moved away.

E204 (image leading edge detection error)

[1] The image signal is not generated when the No. 1 mirror base is moving forward.

[2] The ADF does not generate the image leading edge signal in stream reading mode.

COPIER>ADJUST>ADJ-XY>ADJ-X (scanner image leading edge adjustment)

Enter an appropriate value to adjust the image leading edge position.

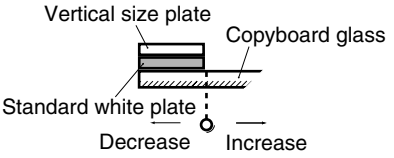
Range: 0 through 2970 (a change of '12' causes a shift of 1 mm)

COPIER>ADJUST>ADJ>XY>ADJ-S (scanner home position)

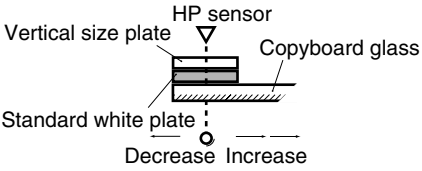
A numerical entry will adjust the home position (i.e., standard white plate reading position).

If dirt develops on the standard white plate, execute this adjustment so that the machine will take a reading while avoiding the area.

Settings: 0 to 4



F02-306-04



F02-306-05

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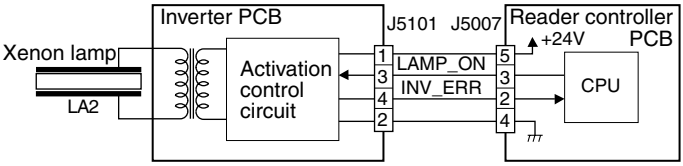
3.7 Controlling the Scanning Lamp (LA101)

3.7.1 Outline

The system used to control the scanning lamp is constructed as follows and the items of control include the following:

[1] Turning on and off the scanning lamp.

[2] Monitoring the scanning lamp for errors.



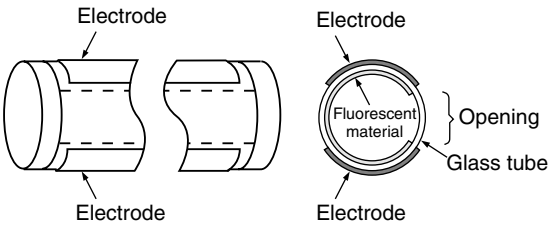
F02-307-01

3.7.2 Scanning Lamp

The machine's scanning lamp is a xenon lamp of a non-electrode discharge type, in which xenon gas is sealed in a tube.

On the outside of the glass tube, two electrodes are arranged parallel to the tube axis, and the inner side of the glass tube is coated with fluorescent material.

The internal gas discharges and, as a result, the fluorescent material glows when a high-frequency voltage is applied across the electrodes.



F02-307-02

3.7.3 Turning On/Off the Lamp

The scanning lamp is turned on/off in response to the drive signal (LAMP_ON) from the CPU on the reader controller PCB. When the signal is generated, the inverter generates a high-frequency, and high-voltage using the drive voltage (+24 V) supplied by the reader controller PCB to turn on the xenon tube.

3.7.4 Detecting an Error

The reader controller circuit generates the error signal (INV_ERR) in response to an error (e.g., output open, short circuit, leak) in the inverter circuit. A fault in the lamp (low intensity, activation failure) will be identified as an activation error caused by lack of intensity during initial activation (e.g., at time of shading correction).

E220
It is used to indicate a fault in the inverter PCB.
E225
It is used to indicate a fault in the scanning lamp (xenon tube).

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3.8 Detecting the Size of Originals

3.8.1 Outline

The machine automatically identifies the size of originals based on the combination of intensities measured by reflection type sensors and CCD at specific points.

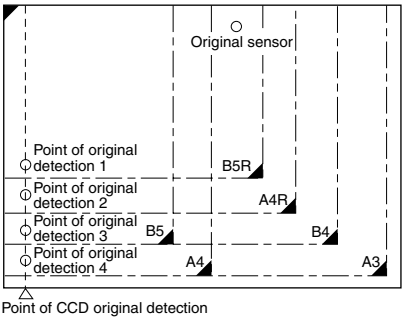
- For main scanning direction, the CCD is used to take measurements (if AB, 4 points; if Inch, 2 points).
- For sub scanning direction, a reflection type photosensor is used (1 point).

3.8.2 Points of Detection

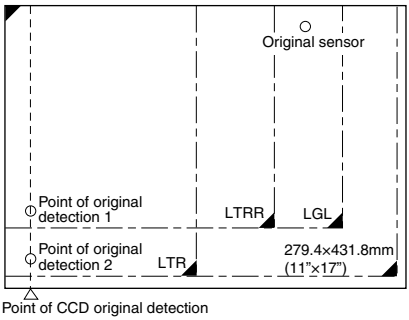
For main scanning direction, the No. 1 mirror base is moved to the following points in relation to the position of the original to measure the intensity at each point.

For sub scanning direction, on the other hand, measurements are taken while holding the sensor in place at a specific point.

AB-Configuration



Inch-Configuration



F02-308-01

3.8.3 Outline of Detection

The machine identifies the size of originals in the following two steps:

[1] Detecting External Light (main scanning direction only)

While keeping the scanning lamp off, the CCD level at each point of detection in main scanning direction is measured. A point at which external light is detected will be identified as indicating the absence of an original, enabling the identification of the width of an original.

[2] Detecting the Sensor Output Level

The scanning lamp is turned on, and the CCD level at each point of detection in main scanning direction is measured. In addition, the reflection type photosensor in sub scanning direction is turned on to measure the sensor output.

The combination of these output measurements is used to identify the size of the original. For specific movements, see the pages that follow.

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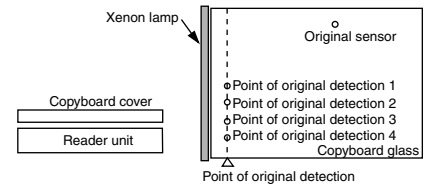
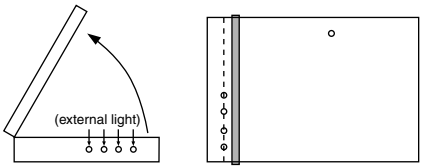
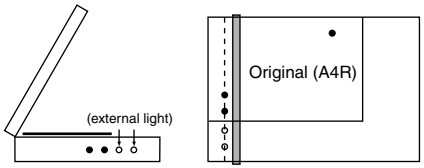
a. Book Mode, 1 Original, Copyboard Cover Open



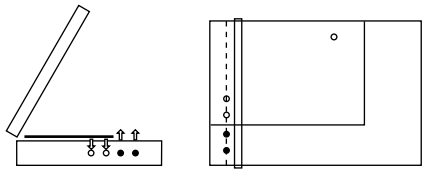
[1] The scanner remains in wait.
No. 1 mirror base: at HP
Xenon lamp: off
Original sensor: disabled



[2] The copyboard is opened.
Detection starts of external light in main scanning direction.
No. 1 mirror base: to point of original detection
Xenon lamp: off
Original sensor: disabled



[3] An original is placed.
The width of the original is identified in relation to the presence/absence of external light; here, the absence of an original is identified at points in question, eliminating B5, B4, A4, and A3.



[4] The Start key is pressed.
In response, original detection is started.
For main scanning direction, the xenon lamp is turned on to check for reflected light by the CCD (4 points).
For sub scanning direction, the original sensor starts detection.
The absence of external light is identified as indicating the absence of an original.
The machine will identify the size of an original based on the combination of the results (T02-308-01)

F02-308-02

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AB-Configuration

Originals size	Point of CCD detection 1	2	3	4	Original sensor
A3	○	○	○	○	○
B4	○	○	○	●	○
A4R	○	○	●	●	○
A4	○	○	○	○	●
B5	○	○	○	●	●
B5R	○	●	●	●	○
None	●	●	●	●	●

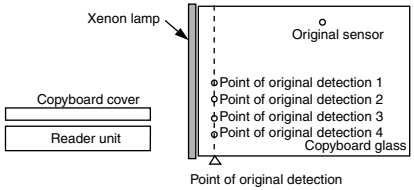
Inch-Configuration

Originals size	Point of CCD detection 1	2	Originals sensor
11"×17"	○	○	○
LGL	○	●	○
LTRR	○	●	●
LTR	○	○	●
None	●	●	●

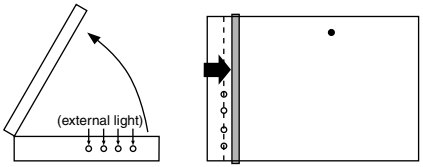
○: reflection present ●: reflection absent

T02-308-01

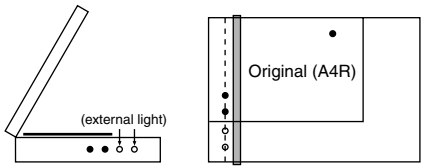
b. Book Mode, 1 Original, Copyboard Cover Close



[1] The scanner remains in wait.
No. 1 mirror base: HP
Xenon lamp: off
Original sensor: disabled



[2] The copyboard cover is opened.
Detection starts of external light in main scanning direction.
No. 1 mirror base: to point of original detection
Xenon lamp: off
Original sensor: disabled



[3] An original is set.
The width of an original is identified in terms of the presence or absence of external light; here, the external light is blocked and the absence of an original is identified, excluding B5, B4, A4, and A3.

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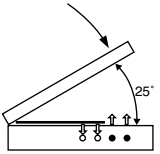
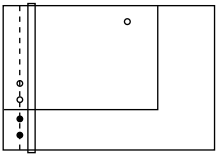
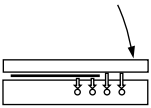
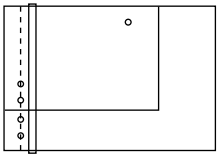


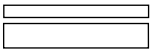


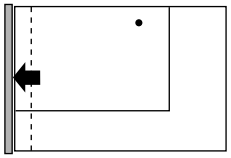
[4] The copyboard cover is closed.
When the copyboard cover is brought down to 25°, the Copyboard cover sensor detects the "closed" state, and original size detection starts.
For main scanning direction, the xenon lamp is turned on, and the CCD checks for reflected light (4 points).
For sub scanning direction, the original sensor starts detection.





[5] The copyboard cover is fully closed.
The changes in the output level of each sensor are monitored until the copyboard cover is fully closed. The absence of a change is identified as indicating the absence of paper, and the size of the original is identified based on the combination of changes in level at five points (T02-308-02).





[6] The scanner remains in wait (for a press on the Start key).
The No. 1 mirror base moves to home position, and the scanner waits for a press on the Start key (wait state).

F02-308-03

AB-Configuration

Originals size	Point of CCD detection 1	2	3	4	Original sensor
A3	○	○	○	○	○
B4	○	○	○	●	○
A4R	○	○	●	●	○
A4	○	○	○	○	●
B5	○	○	○	●	●
B5R	○	●	●	●	○
None	●	●	●	●	●

Inch-Configuration

Originals size	Point of CCD detection 1	2	Original sensor
11"×17"	○	○	○
LGL	○	●	○
LTRR	○	●	●
LTR	○	○	●
None	●	●	●

○: Changes ●: Does not changes

T02-308-02

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3.9 Disassembly/Assembly (iR7200)

The mechanical characteristics of the machine are as described herein; disassemble/assemble the machine as instructed and with the following in mind:

1. ⚠ Before starting any disassembly/assembly work, turn off the main power switch, and disconnect the power plug.
2. Unless otherwise specifically instructed, assemble the machine by reversing the steps used to disassemble it.
3. Identify the screws by type (length, diameter) and location.
4. To protect against static charges, one of the mounting screws of the rear cover comes with a toothed washer. Be sure not to leave out the washer when assembling the machine.
5. To ensure electrical continuity, the mounting screw for the grounding wire and the varistor comes with a washer. Be sure not to leave out the washer when assembling the machine.
6. As a rule, do not operate the machine with any of its parts removed.
7. When sliding out the duplex feeder unit or the fixing assembly, be sure to turn off the front cover switch or the power switch.

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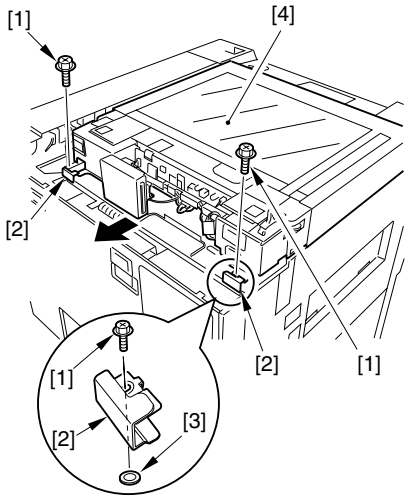
3.9.1 Removing the Reader Unit

1) Remove the ADF.
2) Remove the upper right cover (inside) (See 10.4.1.j.).
3) Remove the rear upper cover (4 screws).
4) Remove the reader rear cover (See 10.4.1.h.).
5) Remove the screw [1], and detach the reader fixing plate [2] and the washer [3] (1 each).
6) Remove the reader unit [4] to the rear.



F02-309-01

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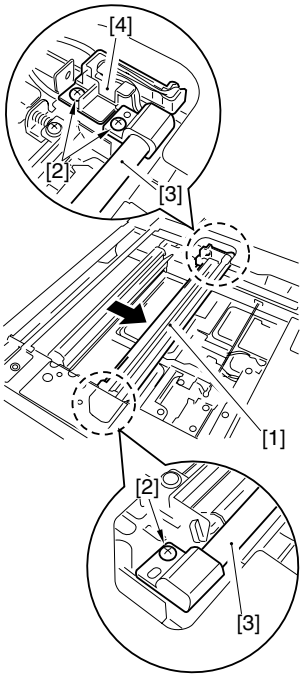
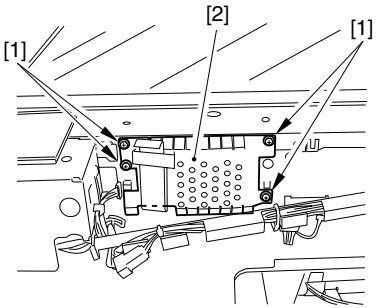
3.9.2 Removing the Scanning Lamp

1) Remove the copyboard glass.
2) Remove the right upper cover and the right upper cover base.
3) Remove the reader left cover; then, detach the reader front cover.
4) Remove the reader controller PCB (See 5.4.2.a.).
5) Move the No. 1 mirror base [1] as far as the cut-in made in the frame.
6) Remove the three screws [2] from the No. 1 mirror base, and detach the scanning lamp [3] together with the cable fixing plate [4].



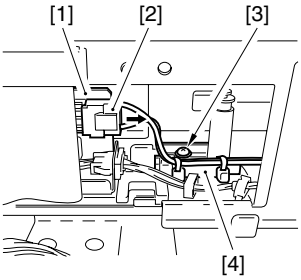
F02-309-02

7) Remove the four screws [1], and detach the blanking plate [2].



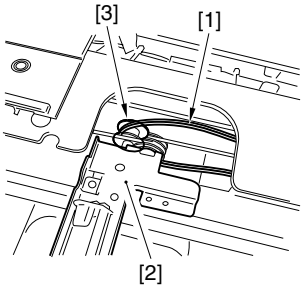
F02-309-03

8) Disconnect the connector[2] from the inverter PCB[1].
Use a screwdriver and remove the rivet [3] out of the hole on the top of the frame. The remove the cable retainer plate [4].



F02-309-04

When mounting the scanning lamp, be sure to hook the cable [1] on the pulley [3] of the No. 2 mirror base [2] without twisting it.



F02-309-05

3.9.3 Points to Note When Replacing the Scanning Lamp

- Do not work while the scanning lamp is hot.
- Do not leave fingerprints on the surface of the scanning lamp.
- If the surface of the scanning lamp is soiled, dry wipe it.
- Do not touch the light window of the scanning lamp, as when mounting it.
- Do not subject the scanning lamp to impact.
- If the lamp fell, do not mount it back regardless of its condition (cracking can occur).

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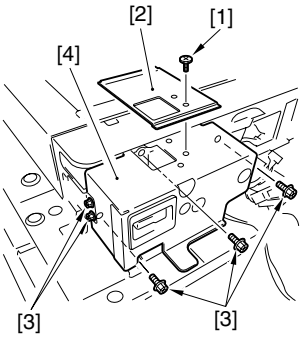
3.9.4 After Replacing the Scanning Lamp

Execute 'CCD auto adjustment' in service mode, and record the updated CCD adjustment data on the service label.

1. CCD Auto Adjustment
   COPIER>FUNCTION>CCD>CCD-ADJ
2. CCD Adjustment Data all items under
   COPIER>ADJUST>CCD

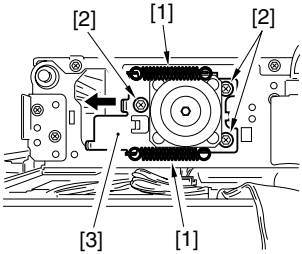
3.9.5 Removing the Scanner Motor

1) Remove the reader rear cover.
2) Remove the reader controller PCB (See 5.4.2.a.).
3) Remove the screw [1], and detach the ADF base (right) [2].
4) Remove the five screws [3], and detach the motor cover [4].



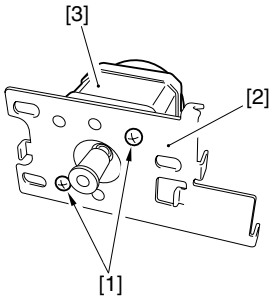
F02-309-06

5) Remove the two springs [1], and remove the three screws [2]; then, while shifting the motor unit [3] in the direction of the arrow, detach the belt.



F02-309-07

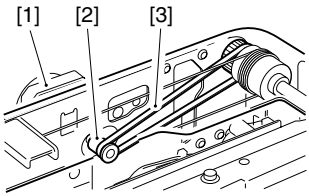
6) Remove the two screws [1], and detach the scanner motor [3] from the motor base [2].



F02-309-08

3.9.6 Mounting the Scanner Motor

1) Attach the belt [3] to the pulley [2] of the scanner motor [1].
2) Fit the motor base to its position, fit the two springs to provide tension to the belt; then, secure it in place with three screws (See 3.9.5 Use the springs and the screws removed in step 5)).



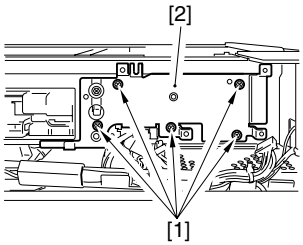
F02-309-09

3.9.7 Removing the Scanner System Drive Cable

Obtain the following before starting to replace the scanner drive cable:

- mirror positioning tool (FY9-3009)

1) Remove the ADF.
2) Remove the copyboard glass.
3) Remove the reader left cover and the reader front cover.
4) Remove the motor cover (See 3.9.5 through 4) used to the motor).
5) Remove the five screws [1], and detach the PCB base [2].



F02-309-10

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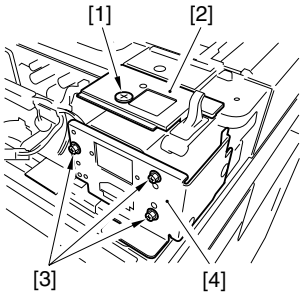
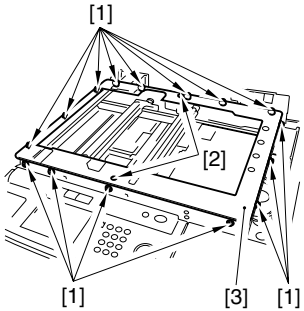
6) Remove the screw [1], and detach the ADF base (left) [2]; then, remove the three screws [3], and detach the copyboard sensor base [4].



F02-309-11

7) Remove the 15 screws [1], and remove the two screws [2]; then, detach the reader upper frame [3].



F02-309-12

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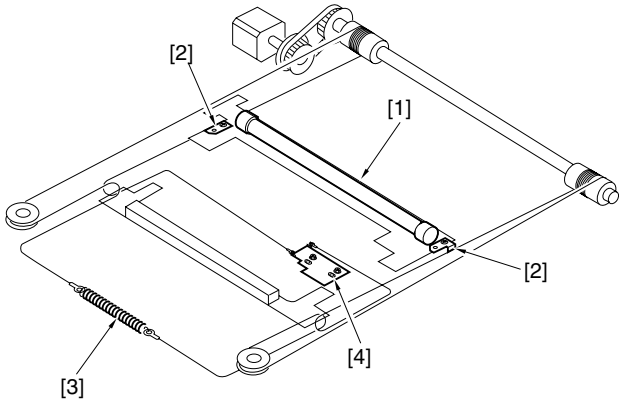
8) Remove the two cable fixing screws [2] of the No. 1 mirror base [1].
9) Remove the two springs [3] used to secure the cable in place.
10) Remove the cable fixing plate [4] and each pulley cable.



F02-309-13

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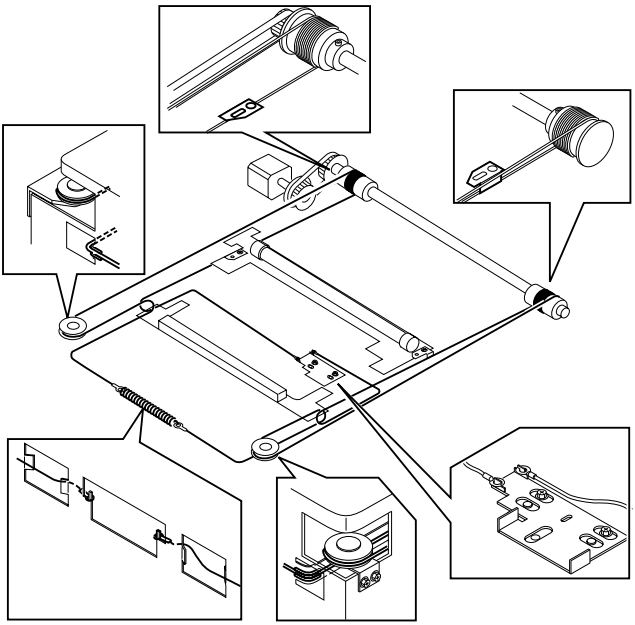
3.9.8 Routing the Scanner Drive Cable

Route the scanner cable to each pulley and hook mirror base in the order indicated:

1) Loosen the screw on the cable fixing plate.
2) Fit the ball of the cable into the hole of the drive pulley, and wind the cable (4 times inward, 5 times outward); then, tape it in place. When winding, be sure that the cable metal fixing is inside.
3) Hook the cable on each pulley, and temporarily fix one end to the cable fixing plate and the other end to the hook of the reader frame.
4) Temporarily fix the cable metal fixing to the No. 1 mirror base (Do not fully secure it).
5) Mount the reader paper frame.



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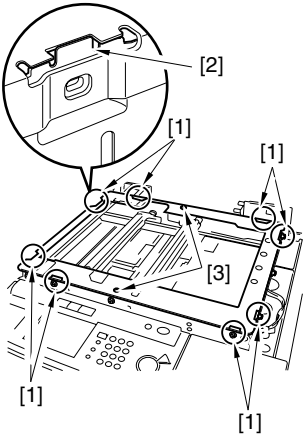
When mounting the reader upper frame, be sure to go through the following steps:

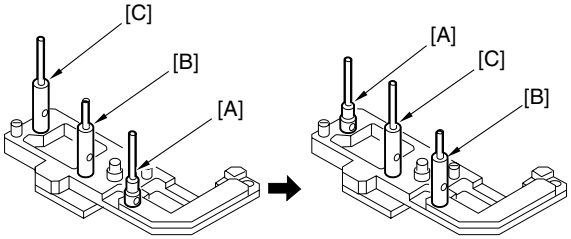
1) Fit the ten claws [1] of the reader frame correctly into the cut-offs in the reader upper frame.
2) Secure the positions [2] of the six left/right claws using screws.
3) Fit the two screws [3] at the end.



F02-309-15

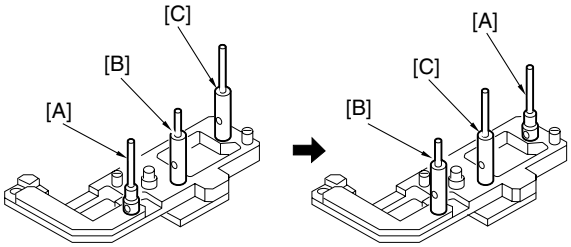
3.9.9 Positioning the No. 1/2 Mirror Base

1) Set the pins of the mirror position tool as indicated.



Initial FY9-3009 configuration (for rear)

Configuration used for the machine (for rear)



Initial FY9-3009 configuration (for front)

Configuration used for the machine (for front)

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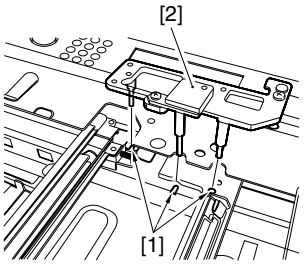
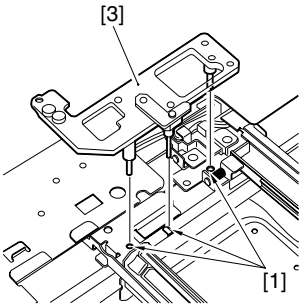
2) Insert the pins of the mirror positioning tool (front [2]/rear [3]) into each of the holes [1]: No. 1 mirror base, No. 2 mirror base, and rail. The position of the No. 2 mirror base is adjusted by sliding the cable fixing plate to the front and the rear.



F02-309-17



F02-309-18

3) Secure the end of the cable so far temporarily fixed to the hook of the reader frame using a spring.
4) Fully tighten the screw on the cable fixing plate.
5) Fully tighten the cable metal fixing on the No. 1 mirror base.
6) Detach the mirror positioning tool.
7) Reverse steps 1) through 6) for mounting.

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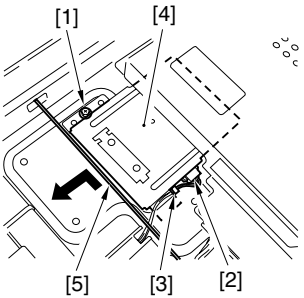
3.9.10 Removing the Original Size Sensor

1) Remove the copyboard glass.
2) Move the No. 1 mirror base to the left end.
3) Remove the screw [1], and disconnect the connector [2]; then, free the cable from the cable clamp [3], and detach the original sensor unit [4].

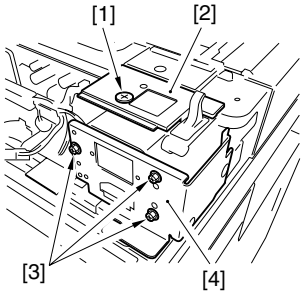


F02-309-19

When removing the original sensor, take care not to damage it against the cable [5].

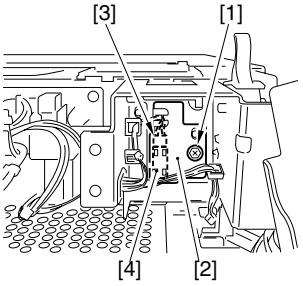
3.9.11 Removing the HP Sensor

1) Remove the ADF unit from the reader unit.
2) Remove the reader rear cover (See 10.4.1.h.).
3) Remove the screw [1], and detach the ADF base (left) [2].
4) Remove the three screws [3], and detach the fuse base [4].



F02-309-20

5) Remove the screw [1], and detach the sensor base [2]; then, disconnect the connector [3], and detach the HP sensor [4] from the base.



F02-309-21

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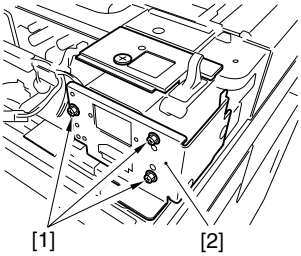
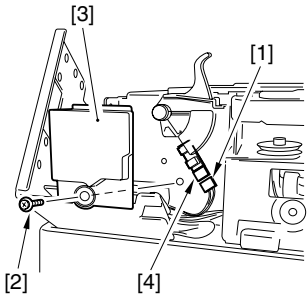
3.9.12 Removing the Copyboard Cover Sensor

1) Remove the reader rear cover (See 10.4.1.h.).
2) Remove the three screws [1], and detach the fuse PCB base [2].



F02-309-22

3) Disconnect the connector [1], and remove the screw [2]; then, detach the copyboard cover sensor cover [3] and the copyboard cover sensor [4].



F02-309-23

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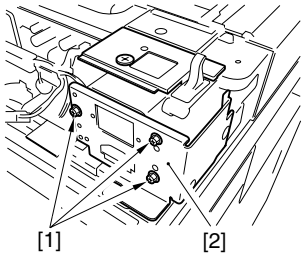
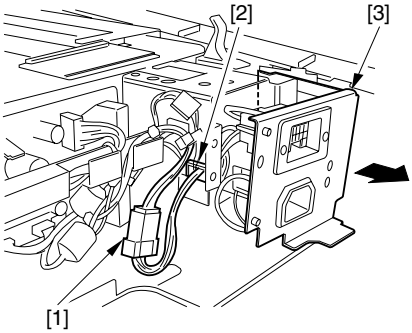
3.9.13 Removing the Fuse PCB

1) Remove the reader rear cover (See 10.4.1.h.).
2) Remove the three screws [1], and free the fuse PCB base [2] from the ADF mounting plate.



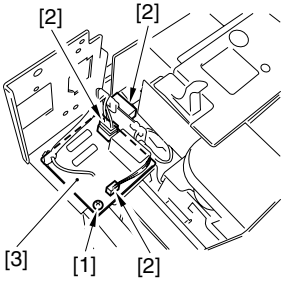
F02-309-24

3) Disconnect the connector [1], and free the harness from the edge saddle [2]; then, draw out the fuse PCB base [3] farther.



F02-309-25

4) Remove the screw [1], and disconnect the three connectors [2]; then, detach the fuse PCB [3].



F02-309-26

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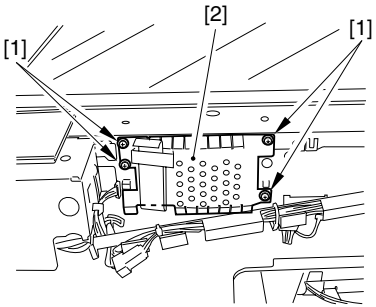
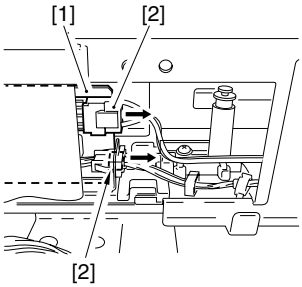
3.9.14 Removing the Inverter PCB

1) Remove the reader controller PCB (See 5.4.2.a.).
2) Remove the three screws [1], and detach the blanking plate [2].



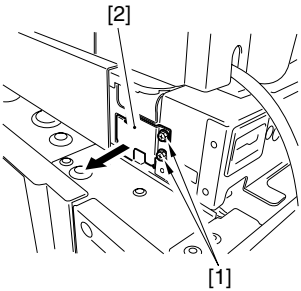
F02-309-27

3) Disconnect the two connectors[2] from the inverter PCB [1].



F02-309-28

4) Remove the two screws [1], and pull out the inverter unit [2].



F02-309-29

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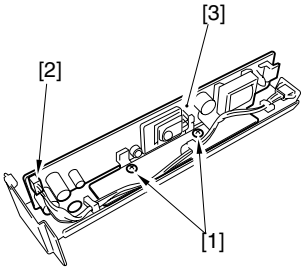
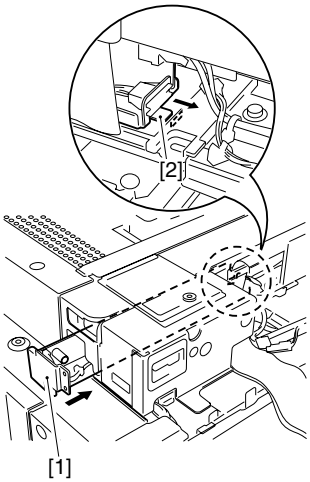
5) Remove the two screws [1], and disconnect the connector [2]; then, detach the inverter PCB [3].



F02-309-30

Points to Note When Mounting the Inverter PCB

When fitting the inverter PCB [1] into the reader frame, be sure to fit the leading edge [2] of the frame of the inverter PCB into the mounting hole in the reader frame.



F02-309-31

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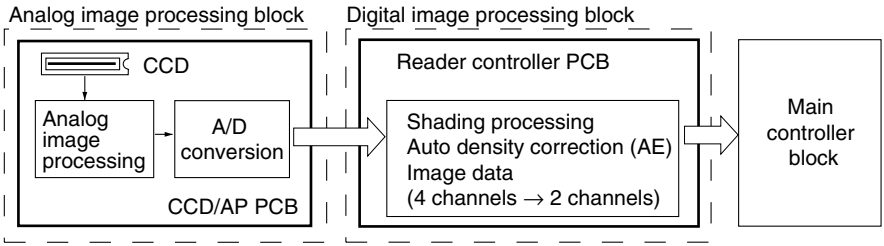
4 Outline of the Image Processing System (iR8500)

4.1 Outline

The image processing system has the following major functions:

- CCD (image sensor)
  Number of lines: 1 line
  Number of pixels: 7500 pixels
  Image size: 7 × 7 µm
- Shading Correction
  Shading adjustment: in service mode
  Shading correction: executed for each copy
- Auto Density Correction: Executed once for every line in main scanning direction

F02-202-01 shows the functional construction related to the image processing system:



F02-401-01

The functions of each PCB of the image processing system are as follows:

[1] CCD/AP PCB: drives the CCD, processes analog images, executes A/D conversion

[2] Reader controller PCB: executes shading correction, executes auto density correction, converts image data (4 channels → 2 channels)

4.2 Changes to the Image Processing System

Unit/location	Changes to GP605	Purpose	Remarks	Reference
Image processing block	Change to the arrangement of the image processing system	To support IP machines	In the case of the GP605, the CCD PCB, IP PCB, and MFC PCB.	4.1 Outline
Main controller	To accommodate IP machines			Chapter 3 Main Controller
HDD	HDD size: 10 GB	To improve image processing performance	In the case of the GP605, 2 GB.	
Binary processing method	For text, text/photo, and print photos, uses the error diffusion method (the T-bic-method)	To improve image processing performance	In the case of the GP605, error division method (R-ED method)	Chapter 3 Main Controller
	For film photos, uses the dither screen method (141 line)	To improve image processing performance	In the case of the GP605, dither screen method (106 line)	Chapter 3 Main Controller
Reader controller	Detection of original orientation, detection of original orientation only for 1st sheet	To review specifications	In the case of the GP605, all sheets are checked for orientation	4.7 Detecting the Orientation of Originals

T02-402-01

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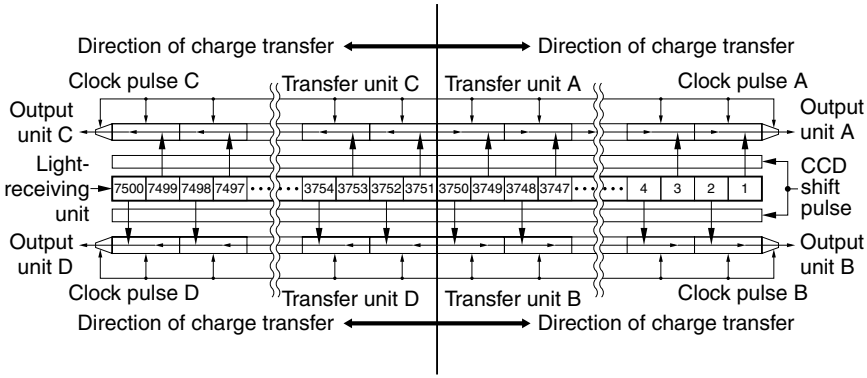
4.3 4-Channels High-speed CCD

To accommodate the reading speed of 80 ipm, a 4-channel high-speed CCD is used. The CCD consists of two CCDs (half the length of the existing CCD) combined together. The resulting CCD is divided into the first half and the second half in the middle, and reading is started at both ends (left/right), thereby reducing the data transfer time needed for reading by half and ultimately enabling high-speed reading.

The image data comes in four channels: even-number pixels from first half, odd-number pixels from first half, even-number pixels from last half, and odd-number pixel from last half. The CCD data is transferred as shown in F02-403-01:



F02-403-01

4.4 CCD Adjustment

The CCD is made up of two CCDs joined in the middle; as such, if the gain characteristics differ between its first half and its last half, the image read at the seam will be different, causing a line in the image.

If the reader controller PCB or the CCD/AP PCB has been replaced or the CCD correction data stored in the SRAM of the reader controller PCB is lost, you must execute CCD adjustment in service mode, thereby equalizing the gain at the joint between the first half and the last half.

The new parameters occurring after adjustment will all be stored in the SRAM of the reader controller PCB.

Adjustments may be any of the following three in service mode:

A. CCD Shading Correction
COPIER>FUNCTION>CCD>CCD-ADJ
By executing CCD shading correction (as in the GP605)

B. CCD Gain Simple Correction
COPIER>FUNCTION>CCD>LUT-ADJ
By executing automatic CCD gain correction using white paper

C. CCD Gain Full Correction
CCD>FUNCTION>CCD>LUT-ADJ2
By using a 10-gradation chart (if CCD simple correction fails)

One of the above needs to be selected to suit the conditions in question.

After executing A, be sure to execute B; if adjustment still fails, execute C. Do not execute B or C alone.

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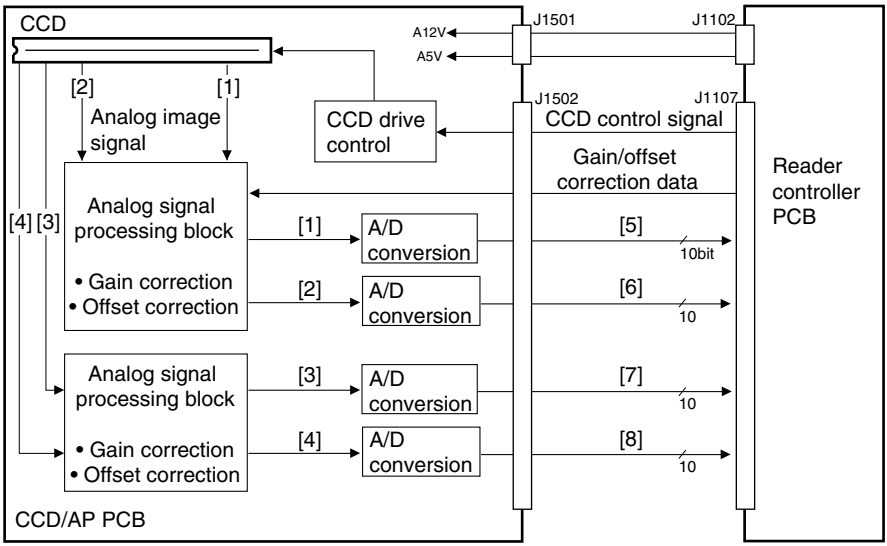
4.5 Analog Image Processing

Analog image processing is performed on the CCD/AP PCB, and consists of the following main items:

- Driving the CCD
- Executing gain correction for the CCD output, executing offset correction
- Executing A/D conversion for the CCD output



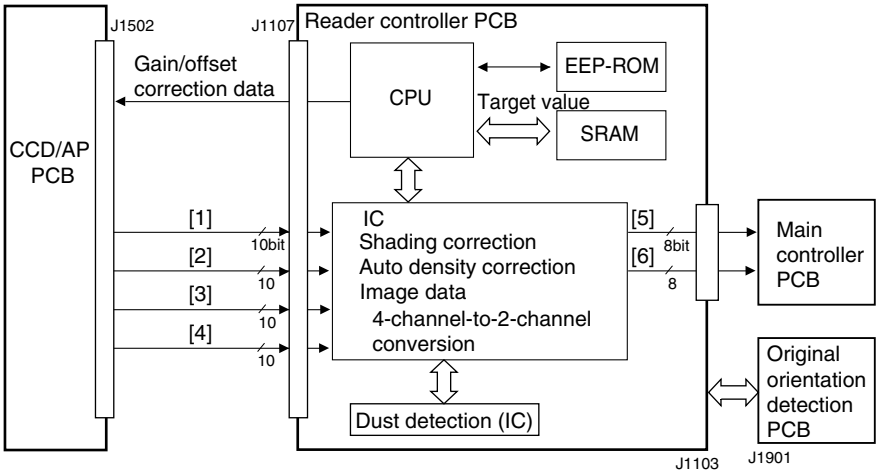
[1] First half even-number pixel analog image signal
[2] First half odd-number pixel analog image signal
[3] Last half even-number pixel analog image signal
[4] Last half odd-number pixel analog image signal
[5] First half even-number pixel analog image signal
[6] First half odd-number pixel digital image signal
[7] Last half even-number pixel digital image signal
[8] Last half odd-number pixel digital image signal

F02-405-01

4.6 Digital Image Processing

Digital image processing is performed on the reader controller PCB, and it includes the following major functions:

- Executing shading correction
- Executing auto density correction
- Executing data conversion from 4-channel image data to 2-channel image data



[1] First half even-number pixel digital image signal
[2] First half odd-number pixel digital image signal
[3] Last half even-number pixel digital image signal
[4] Last half odd-number pixel digital image signal
[5] Even-number pixel digital image signal
[6] Odd-number pixel digital image signal

F02-406-01

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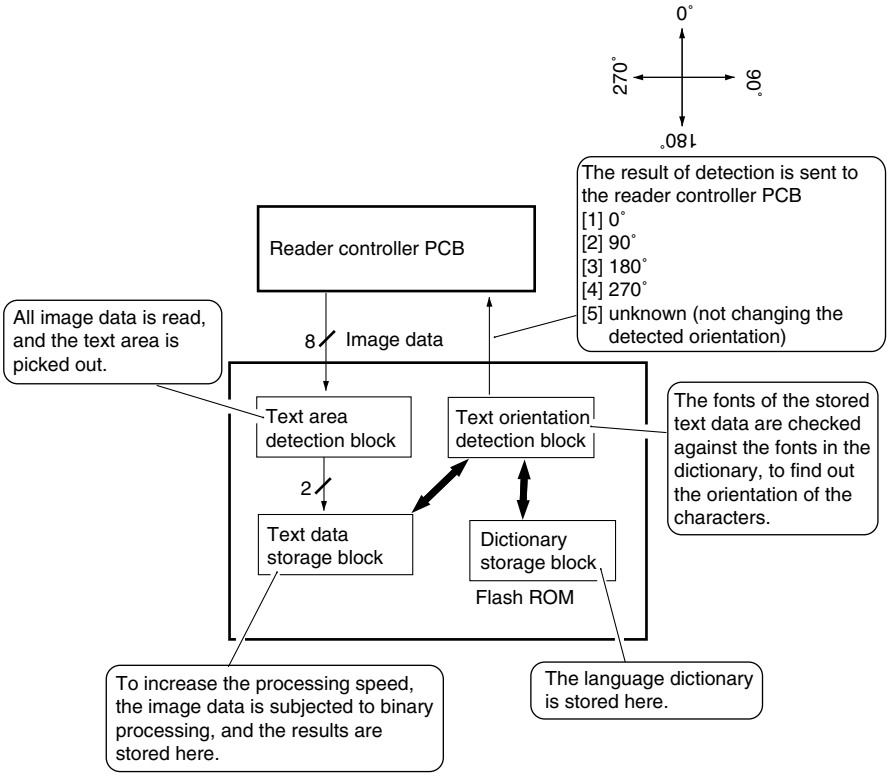
4.7 Detecting the Orientation of Originals

The orientation of the original placed on the ADF is detected by picking out the image data that represents the text of the original and finding out the orientation of the characters.

In the case of the GP605, the orientation of each original is checked for correction, if needed. In the case of the iR8500/iR7200, on the other hand, only the first original is checked, and the pages that follow are corrected based on the result of the detection.

The images are rotated so that the correct orientation may be obtained for the following, reducing the waste and increasing the productivity (as by eliminating the time for additional detection):

- Position of the margin for binding
- Position of the staple
- Direction of layout in reduced image composition mode



F02-407-01

4.8 Disassembly/Assembly (iR8500)

The mechanical characteristics of the machine are as described herein; assemble/assemble the machine as instructed and with the following in mind:

1. ⚠ Before starting any disassembly/assembly work, turn off the main power switch, and disconnect the power plug.
2. Unless otherwise specifically instructed, assemble the machine by reversing the steps used to disassemble it.
3. Identify the screws by type (length, diameter) and location.
4. To protect against static charge, one of the mounting screws of the rear cover comes with a toothed washer. Be sure not to leave out the washer when assembling the machine.
5. To ensure electrical continuity, the mounting screw for the grounding wire and the varistor comes with a washer. Be sure not to leave out the washer when assembling the machine.
6. As a rule, do not operate the machine with any of its parts removed.
7. When sliding out the duplex feeder unit or the fixing assembly, be sure to turn off the front cover switch or the power switch.

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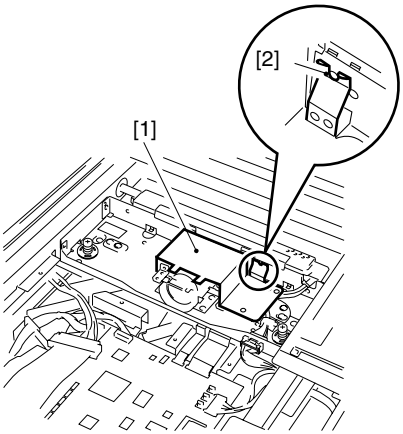
4.8.1 CCD Unit

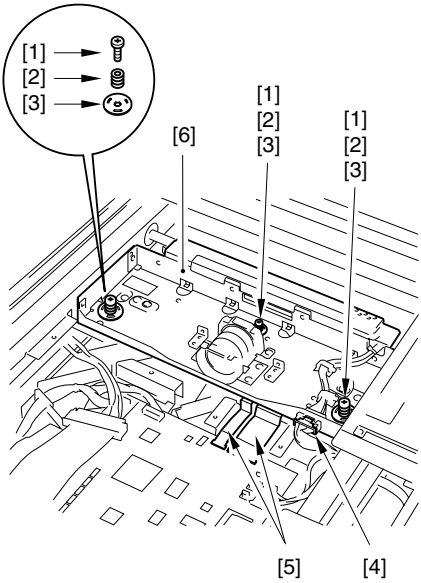
a. Removing the CCD Unit

1) Remove the reader controller cover (See 2.9.4.h.).
2) Free the front/rear claw [2] of the CCD cover [1], and detach the CCD cover.



F02-408-01

3) Remove the fixing screw [1], spring [2], and spring plate [3], and disconnect the connector (3 locations); then, disconnect the 2 flat cables [5] from the reader controller PCB, and detach the CCD unit [6].



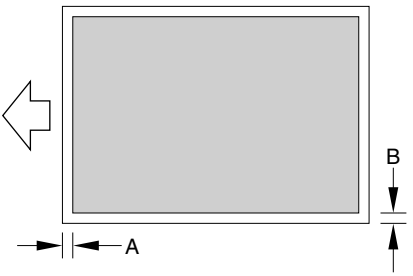
F02-408-02

b. When Replacing the CCD Unit

1) Check to make sure that the Execution/Memory lamp in the control panel is OFF, and turn off the main power switch.
2) Disconnect the power plug from the power outlet.

The machine remains powered as long as the power plug is connected. Be sure to disconnect the power plug from the power outlet.

3) Replace the CCD unit.
4) Assemble the machine, and connect the power plug to the power outlet; then, turn on the main power switch.
5) Execute the following in service mode in sequence:
   1. COPIER>FUNCTION>CCD>CCD-ADJ
   2. COPIER>FUNCTION>CCD>LUT-ADJ
6) All items of the following will be updated; record them on the service label:
   COPIER>ADJUST>CCD>All Items, COPIER>ADJUST>LAMP>L-DATA.
7) Turn off and then on the main power switch.
8) Make test copies in book mode and feeder mode to make sure that the images are not displaced; if displaced, execute the following:
   Book Mode
   A: COPIER>ADJUST>ADJ-XY>ADJ-X
   B: COPIER>ADJUST>ADJ-XY>ADJ-Y



F02-408-03

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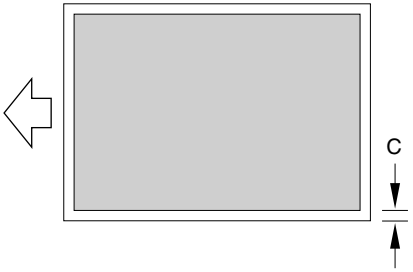
Feeder Mode
C: COPIER>ADJUST>ADJ-Y-DF



F02-408-04

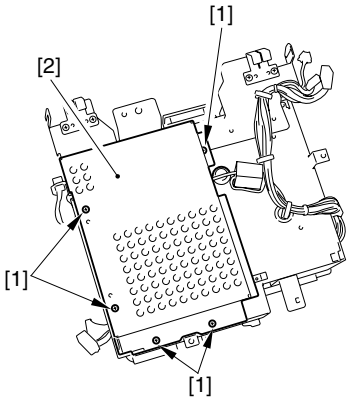
9) Execute the following in service mode to print out a service label, and store away the service label in the service book case.

4.8.2 Hard Disk

As Hard Disks are susceptible to vibration, handle with care.

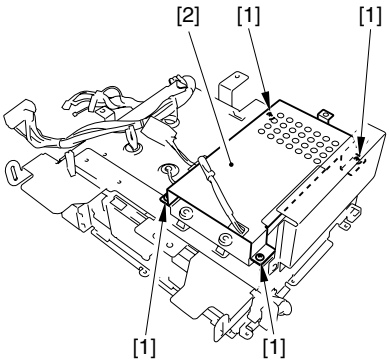
a. Removing the Hard disk

1) Remove the main control box.
2) Remove the 5 screws [1], and detach the cover [2].



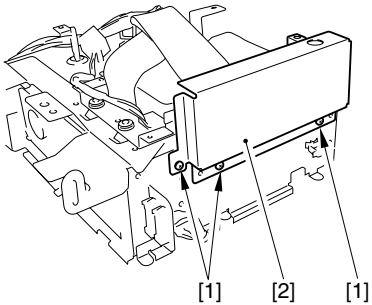
F02-408-05

3) Remove the 4 screws [1], and detach the hard disk cover [2].



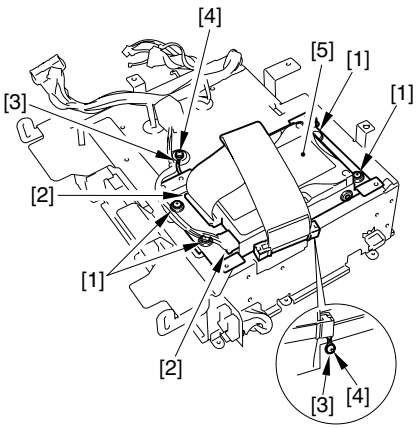
F02-408-06

4) Remove the 3 screws [1], and detach the lower cover plate [2].



F02-408-07

5) Remove the 4 screws [1], disconnect the 2 connectors [2], and remove the mounting screws [4] of the grounding wires [3]; then, detach the hard disks [5] together with the mounting base.



F02-408-08

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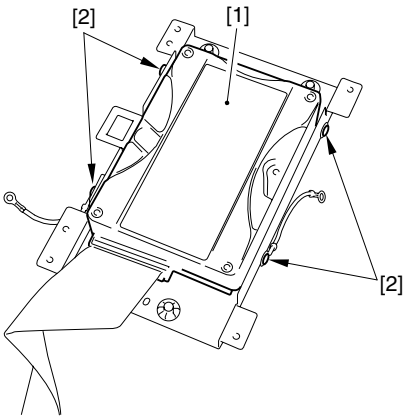
6) Remove the 4 screws [1], and detach the hard disk [2].



F02-408-09

b. When Replacing the Hard Disk

When replacing the hard disk unit, be sure of the following:
1. Take measures against static charges to protect against static damage.
2. Do not subject the hard disk unit to impact.

1) Replace the hard disk unit.
2) Assemble the machine, and connect the power plug to the power outlet.
3) Connect a PC to which the Service Support Tool has been installed.
4) Turn on the PC, and turn on the main power switch while pressing '2' and '8' in the control panel at the same time.
5) Using the Service Support Tool, format the hard disk unit and install the system software.

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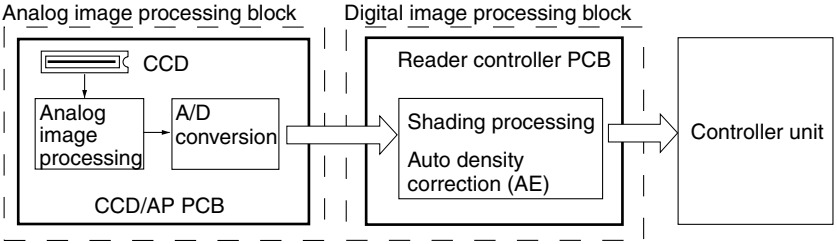
5 Image Processing System (iR7200)

5.1 Outline

The major functions of the image processing system are as follows:

- CCD (image sensor)
  Number of lines: 1
  Number of pixels: 7450
  Size of pixel: 4.7 × 4.7 µm
- Shading Correction
  Shading adjustment: executed in service mode
  Shading correction: executed for each copy
- Auto Density Adjustment (AE)
  Executed for each line in main scanning direction.

The image processing system consists of the following functional blocks:



F02-501-01

Each of the PCBs used in the image processing system has the following functions:

[1] CCD/AP PCB: Drives the CCD, performs analog image processing, performs A/D conversion.
[2] Reader controller PCB: Performs shading correction, performs auto density adjustment (AE).

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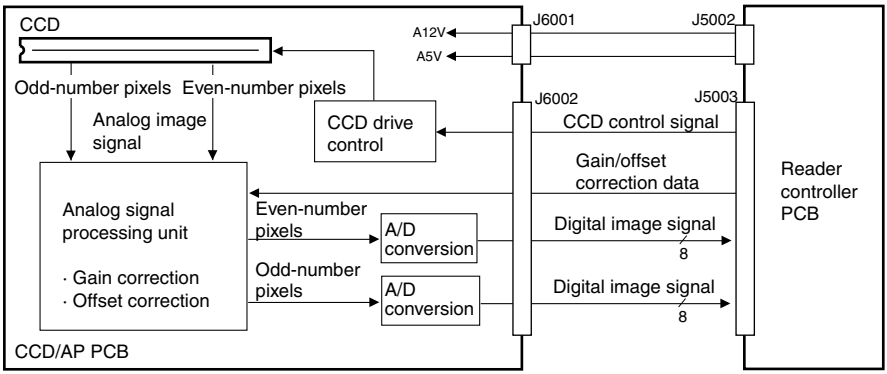
5.2 Analog Image Processing

5.2.1 Outline

Analog image processing is performed by the CCD/AP PCB, which has the following major functions:

[1] Drives the CCD.
[2] Corrects the gain in the CCD output, corrects offset.
[3] Performs A/D conversion of CCD output.

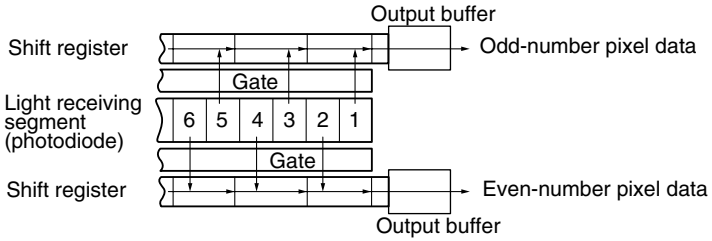


F02-502-01

5.2.2 Driving the CCD

The machine's CCD sensor is a single-line linear image sensor, and is composed of 7450 pixel photo cells.

The signals subjected to phtoconversion in the light-receiving segment are sent out in two types of analog signals: even-number (EVEN) pixels and odd-number (ODD) pixels.



F02-502-02 CCD Block Diagram

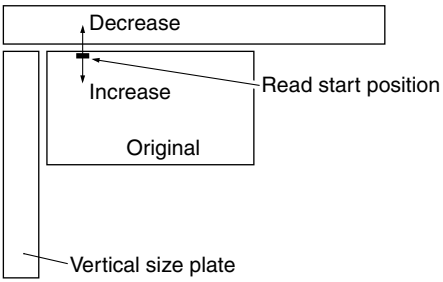
5.2.3 Gain Correction and Offset Correction of the CCD Output

To correct discrepancies in the efficiency of photoconversion among pixels, the analog video signals from the CCD are corrected: in gain correction, the rates of amplification are standardized; in offset correction, on the other hand, the output voltage in the absence of incoming light is set to a specific level.

5.2.4 A/D Conversion of the CCD Output

The analog video signals of odd-number and even-number pixels after correction are converted into 8-bit digital signals that correspond to specific pixel voltage levels by the A/D converter.

COPIER/ADJUST>ADJ-XY>ADJ-Y (CCD read start position adjustment)
It is used to adjust the parameter used determining the read start position in main scanning direction.
Range: 0 to 400
(A change by '12' results in a shift of 1 mm.)



F02-502-03

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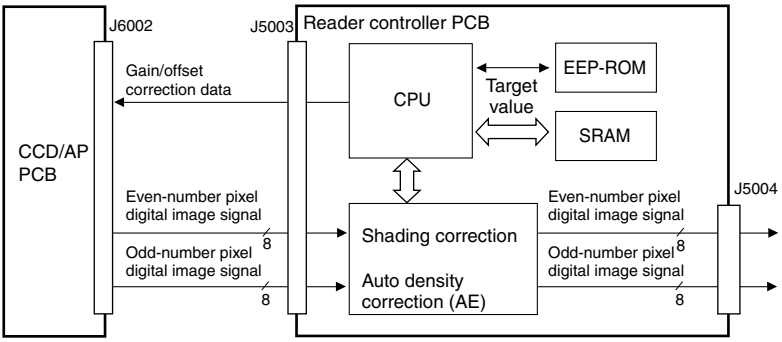
5.3 Digital Image Processing

5.3.1 Outline

Digital image processing is performed by the reader controller PCB, which has the following major functions:

[1] Shading correction
[2] Auto density adjustment (AE)



F02-503-01 Functional Blocks

5.3.2 Shading Correction

a. Outline

The output of the CCD will not necessarily be uniform because of the following factors even if the density of the original in question is perfectly uniform:

1) The level of sensitivity of a CCD pixel differs from that of another.
2) The level of penetration of light differs between the center and the periphery of a lens.
3) The intensity of the scanning lamp differs between the middle and the ends of the lamp.
4) The scanning lamp is subject to deterioration.

Shading correction is executed to correct discrepancies in the output of the CCD, and it may be of either of the following two: shading adjustment used to determine a target level in service mode and shading correction executed when scanning each original.

To make up for the fluctuations in the intensity of light occurring at short intervals, edge area gain correction is also executed.

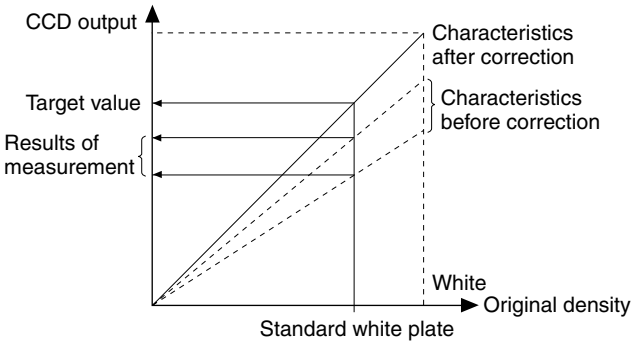
b. Shading Adjustment

In this adjustment, the density of white paper and that of the standard white plate are measured, and the results are stored in memory.

The data is computed for use as the target level during shading correction. The adjustment is designed for service mode and is used upon installation of the machine, after replacement of the scanning lamp, or when correcting changes in the intensity of the scanning lamp occurring over time.

c. Shading Correction

This correction is executed each time an original is scanned. The density of the standard white plate is measured and the result is compared against the target value stored in the shading correction circuit. The difference is used as the shading correction value, which will be used to correct the variation in CCD pixels, thereby ensuring a specific level of image density.



F02-503-02

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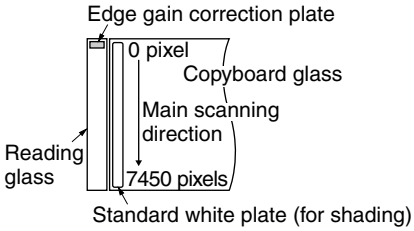
d. Edge Gain Correction (ADF in use)

In stream reading with the ADF in use, the No. 1 mirror base is fixed in position. To check for changes in the intensity of the scanning lamp, the edge gain correction plate (gray; mounted at the edge of read position) is read, and a gain that enables the attainment of a specific intensity is computed.

The result is used to correct the data which otherwise would be affected by changes in the intensity of light (Not executed if AE is selected).



F02-503-03

5.3.3 Auto Density Adjustment (AE)

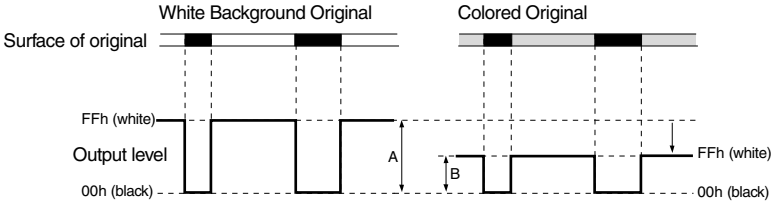
a. Outline

As in the case of a newspaper, some originals have a dark background. Auto density correction is executed to reproduce the information (text, graphics) of such originals by removing the background.

This adjustment is enabled in density auto mode or when text mode is selected and data is processed by the ABC circuit.

b. ABC Circuit

A colored background is identified as being white by changing the height of the dynamic range according to the chromatic level of the background as shown in the following figure for the CCD output level (8bit) of digital image signals (A/D converted).



A : dynamic range of white-background original.
B : dynamic range of colored-background original.

F02-503-04

COPIER>FUNCTION>CCD>CCD-ADJ (shading auto adjustment)
Execute the mode after replacing the CCD unit, scanning lamp, reader controller PCB, or standard white plate.

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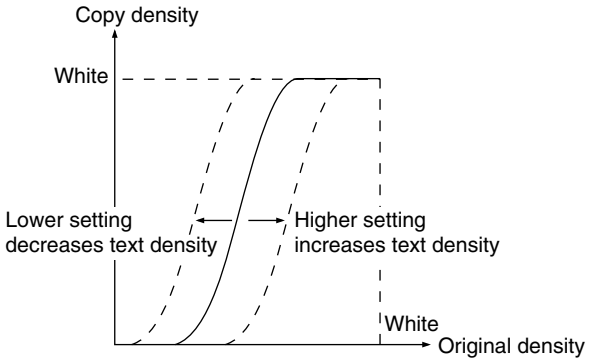
COPIER>ADJUST>CCD>PPR (density data of standard white paper)
COPIER>ADJUST>CCD>PLT (density data of standard white plate)
COPIER>AJDUST>CCD>GAIN-E/O (gain adjustment input of CCD output)
COPIER>ADJUST>CCD>OFST-E/O (offset adjustment input of CCD output)
COPIER>ADJUST>CCD>SH_RATIO (white level ratio data of standard white plate and standard white paper during shading correction)
If a faulty image is generated after executing shading auto adjustment, enter the parameter values indicated on the service label.
COPIER> ADJUST> CCD> EGGN-ST (Enter an adjustment value for the end gain correction start position)
COPIER> ADJUST> CCD> EGGN-END (Enter an adjustment value for the end gain correction end position)
Enter the edge gain correction value on the service label.

COPIER>ADJUST>AE>AE-TBL (text density adjustment for real-time AE mode)
Use it to change the parameter for adjustment of the density correction curve (for real-time AE mode; 10 steps).
Range: 0 to 9 (default: 4)



F02-503-05

5.4 Disassembly/Assembly (iR7200)

The mechanical characteristics of the machine are as described herein; assemble/assemble the machine as instructed and with the following in mind:

1. ⚠ Before starting any disassembly/assembly work, turn off the main power switch, and disconnect the power plug.
2. Unless otherwise specifically instructed, assemble the machine by reversing the steps used to disassemble it.
3. Identify the screws by type (length, diameter) and location.
4. To protect against static charge, one of the mounting screws of the rear cover comes with a toothed washer. Be sure not to leave out the washer when assembling the machine.
5. To ensure electrical continuity, the mounting screw for the grounding wire and the varistor comes with a washer. Be sure not to leave out the washer when assembling the machine.
6. As a rule, do not operate the machine with any of its parts removed.
7. When sliding out the duplex feeder unit or the fixing assembly, be sure to turn off the front cover switch or the power switch.

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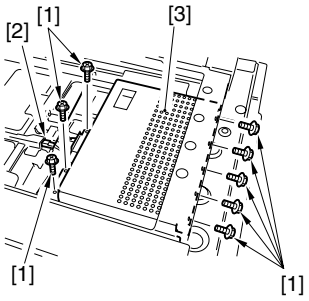
5.4.1 CCD/AP PCB

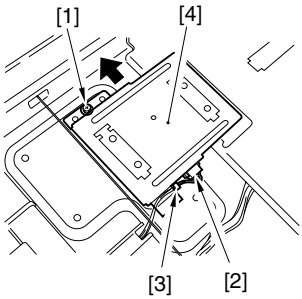
a. Removing the CCD Unit

1) Remove the upper right cover or slide the reader unit (See 10.4.1.j or see 6.3.1.a.).
2) Remove the reader right cover and detach the copyboard glass.
3) Move the No. 1 mirror base to the left end.
4) Remove the right upper cover and the right upper cover base.
5) Remove the reader left cover and the reader front cover.
6) Remove the eight screws [1], and disconnect the connector [2]; then, detach tje CCD shielding plate [3].



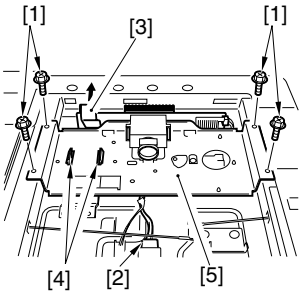
F02-504-01

7) Remove the screw [1], and disconnect the connector [2]; then, free the cable from the cable clamp [3], and detach the original sensor unit [4].



F02-504-02

8) Remove the four screws [1], and disconnect the connector [2]; then, free the flat cable [3], and free the two fixing claws [4]. Thereafter, detach the CCD unit [5].



F02-504-03

b. When Replacing the CCD/AP Unit

Be sure to execute 'CCD auto adjustment' in service mode, and record the updated CCD adjustment data on the service label.

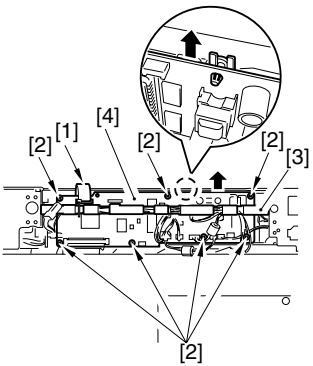
1. CCD Auto Adjustment
   COPIER>FUNCTION>CCD>CCD-ADJ
2. CCD Adjustment dataall items under
   COPIER>ADJUST>CCD

5.4.2 Reader Controller PCB

a. Removing the Reader Controller PCB

1) Remove the reader rear cover.
2) Disconnect the nine connectors [1], remove the seven screws [2], and remove the flat cable [3]; then, detach the reader controller PCB [4].

Do not hurt the flat cable which is removed in step 2).



F02-504-04

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b. When Replacing the Reader Controller PCB

1) Print out the data on the user/service mode settings.
2) Replace the reader controller PCB.
3) Remove the EEPROM (1 pc.) from the existing PCB, and mount it to the new PCB.
4) Assemble the machine, connect the power plug, and turn on the main power switch.
5) Check to make sure that the following settings of service mode are identical with the settings that were effective before the replacement of the PCB:
   COPIER>ADJUST>AE>(all Items)
   COPIER>ADJUST>ADJ-XY>(all Items)
   COPIER>ADJUST>CCD>(all Items)

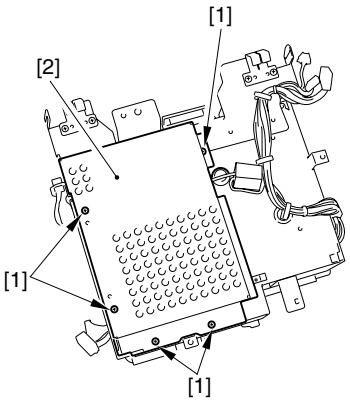
   If a discrepancy is found, enter the appropriate settings in service mode (by referring to the service label).

5.4.3 Hard Disk

As Hard Disks are susceptible to vibration, handle with care.

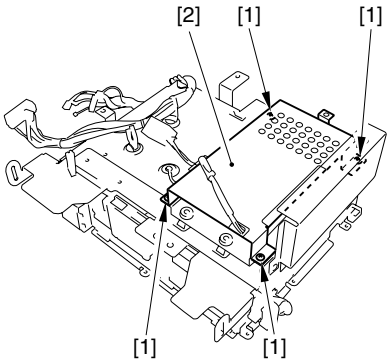
a. Removing the Hard disk

1) Remove the main control box.
2) Remove the 5 screws [1], and detach the cover [2].



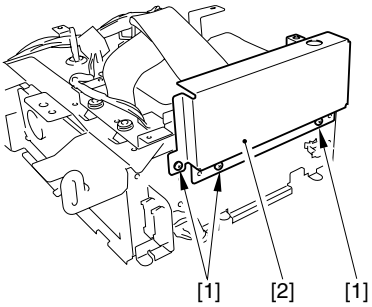
F02-504-05

3) Remove the 4 screws [1], and detach the hard disk cover [2].



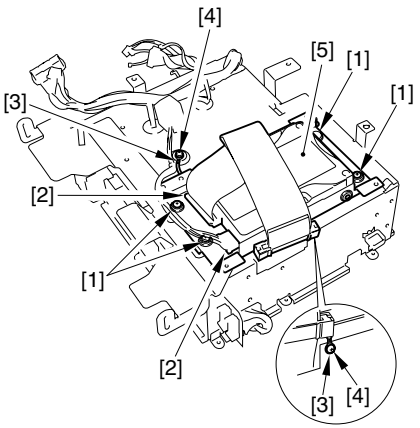
F02-504-06

4) Remove the 3 screws [1], and detach the lower cover plate [2].



F02-504-07

5) Remove the 4 screws [1], disconnect the 2 connectors [2], and remove the mounting screws [4] of the grounding wires [3]; then, detach the hard disks [5] together with the mounting base.



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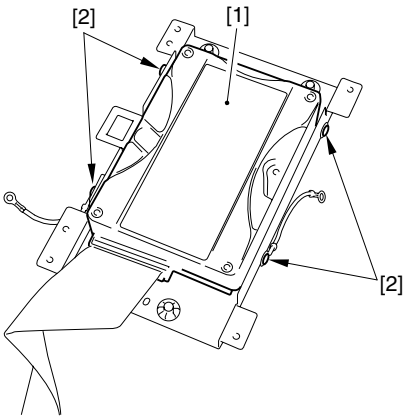
6) Remove the 4 screws [1], and detach the hard disk [2].



F02-504-09

b. When Replacing the Hard Disk

When replacing the hard disk unit, be sure of the following:
1. Take measures against static charges to protect against static damage.
2. Do not subject the hard disk unit to impact.

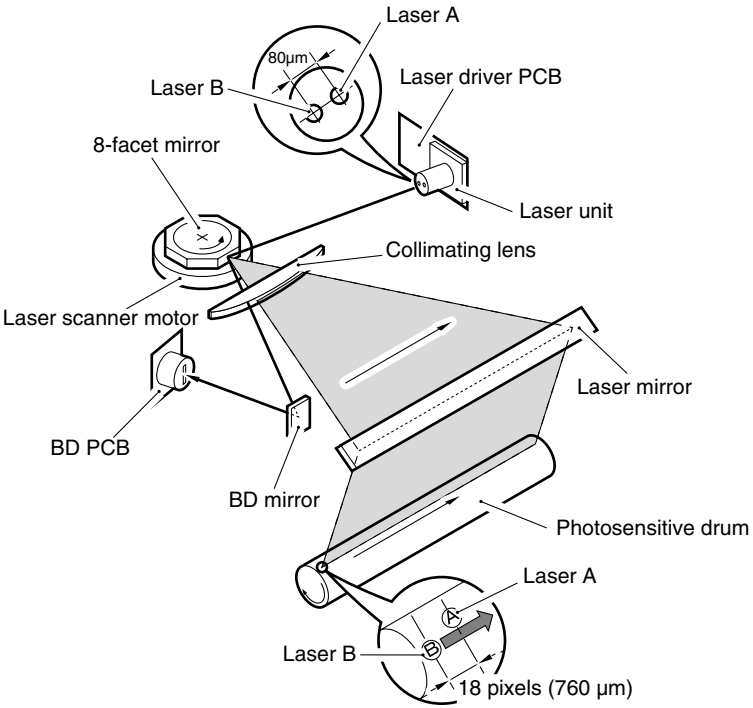
1) Replace the hard disk unit.
2) Assemble the machine, and connect the power plug to the power outlet.
3) Connect a PC to which the Service Support Tool has been installed.
4) Turn on the PC, and turn on the main power switch while pressing '2' and '8' in the control panel at the same time.
5) Using the Service Support Tool, format the hard disk unit and install the system software.

6 Laser Exposure System

6.1 Outline

The laser exposure system consists of a laser unit (source of the laser beam) and a polygon mirror, and it scans the photosensitive drum by running a beam in main scanning direction to create static latent image.

A pair of lasers (laser A, laser B) is used for scanning (twin laser exposure); F02-601-01 and T02-601-01 shows the basic construction of the laser exposure system.



F02-601-01

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Component	Description (specifications)
Laser semiconductor	Visible laser light (about 675 nm in wave length, 7 mW in output), twin laser exposure
Laser scanner motor (M4)	DC motor, 2-speed control, rotation at 40000 rpm
Polygon mirror	8-faceted
BD mirror/BD PCB	Laser beam detection
Laser driver PCB	Laser activation control
Laser scanner motor PCB	Rotation control of the laser scanner motor
Driver PCB	

T02-601-01

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6.2 Changes in the Laser Exposure System

Unit/location	Changes to GP605	Purpose	Remarks	Reference
Laser unit	Increase of the laser output: 7 mW	To support the increase in the process speed	In the case of the GP605, 5 mW.	
Polygon mirror unit	Increase in the speed of rotation: about 40000 rpm (full speed) (rotation in wait: about 20000 rpm)	To support the increase in the process speed	In the case of the GP605, about 27000 rpm (in the case of the GP605, about 20000 rpm)	
	Use of full-speed rotation in standby state	To support the increase in the process speed	In the case of the GP605, in wait rotation	

T02-602-01

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6.3 Disassembly/Assembly

The mechanical characteristics of the machine are as described herein; assemble/assemble the machine as instructed and with the following in mind:

1. ⚠ Before starting any disassembly/assembly work, turn off the main power switch, and disconnect the power plug.
2. Unless otherwise specifically instructed, assemble the machine by reversing the steps used to disassemble it.
3. Identify the screws by type (length, diameter) and location.
4. To protect against static charge, one of the mounting screws of the rear cover comes with a toothed washer. Be sure not to leave out the washer when assembling the machine.
5. To ensure electrical continuity, the mounting screw for the grounding wire and the varistor comes with a washer. Be sure not to leave out the washer when assembling the machine.
6. As a rule, do not operate the machine with any of its parts removed.
7. When sliding out the duplex feeder unit or the fixing assembly, be sure to turn off the front cover switch or the power switch.

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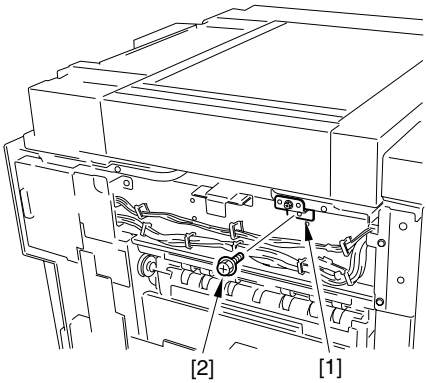
6.3.1 Reader Unit

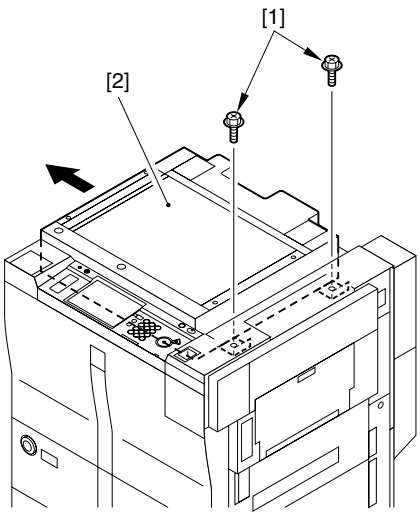
a. Sliding the Reader Unit (iR7200)

1) Remove the ADF.
2) Remove the upper right cover (inside; see 10.4.1.j).
3) Remove the rear upper cover.
4) Remove the left upper cover.
5) Remove the screw [2] of the stopper [1].



F02-603-01

6) Remove the 2 screws [1], and slide the reader unit [2] to the left.



F02-603-02

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6.3.2 Laser Unit

a. Removing the Laser Unit

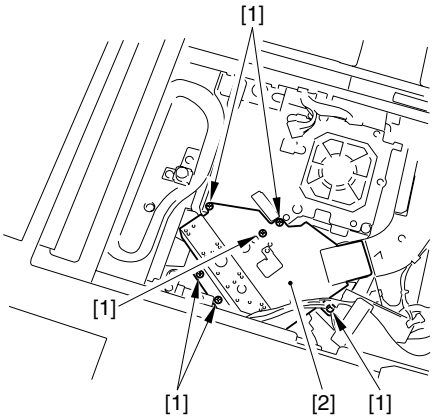
- Preparation for removing the laser unit (iR8500)

1) Remove the CCD unit (See 5.5.1.a.).
2) Remove the reader PCB unit.

- Preparation for removing the laser unit (iR7200)

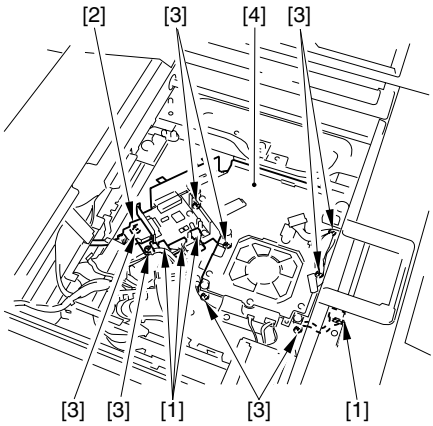
1) Slide the reader unit (See 6.3.1.a.).

3) Remove the 6 screws [1], and detach the laser driver PCB cover [2].



F02-603-03

4) Disconnect the 4 connectors [1], and remove the video cable [2]; then, remove the 8 screws [3], and detach the laser scanner unit [4].



F02-603-04

b. Points to Note When Replacing the Laser Unit

1) Check to make sure that the Execute/Memory lamp in the control panel is OFF; then, turn off the main power switch.
2) Disconnect the power plug from the power outlet.

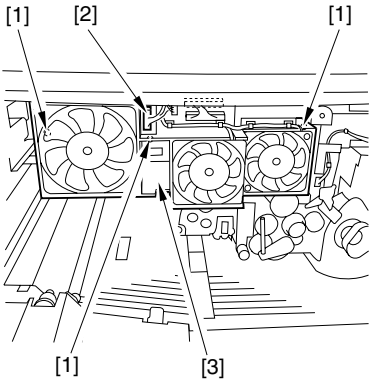
The machine remains powered as long as the power plug is connected to the power outlet. Be sure to disconnect it.

3) Replace the laser unit.
4) Record the values (LA-DELAY) indicated on the label attached to the new laser unit.
5) Assemble the machine, and connect the power plug to the power outlet; then, turn on the main power switch.
6) Enter the values recorded in step 4) using service mode: COPIER>ADJUST>LASER>LA-DELAY.

6.3.3 BD Unit

a. Removing the BD Unit

1) Remove the inside upper cover.
2) Remove the 3 screws [1], and disconnect the 2 connectors [2]; then, remove the laser fan unit [3].
3) Slide out the process unit (See 7.9.1.a.).



F02-603-05

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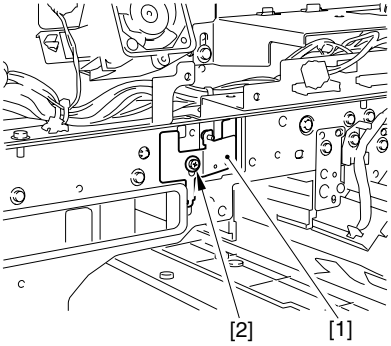
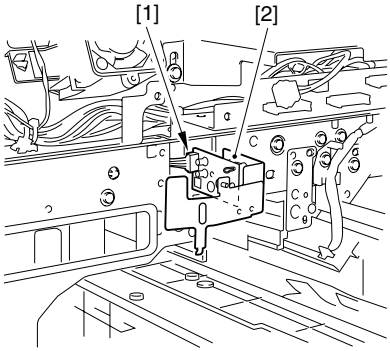
4) Mark the position of the BD unit [1] with a scriber for later reference.
5) Remove the screw [2], and slide out the BD unit [1] to the front.



F02-603-06

6) Disconnect the connector [1], and take out the BD unit [2].



F02-603-07

7 Image Formation System

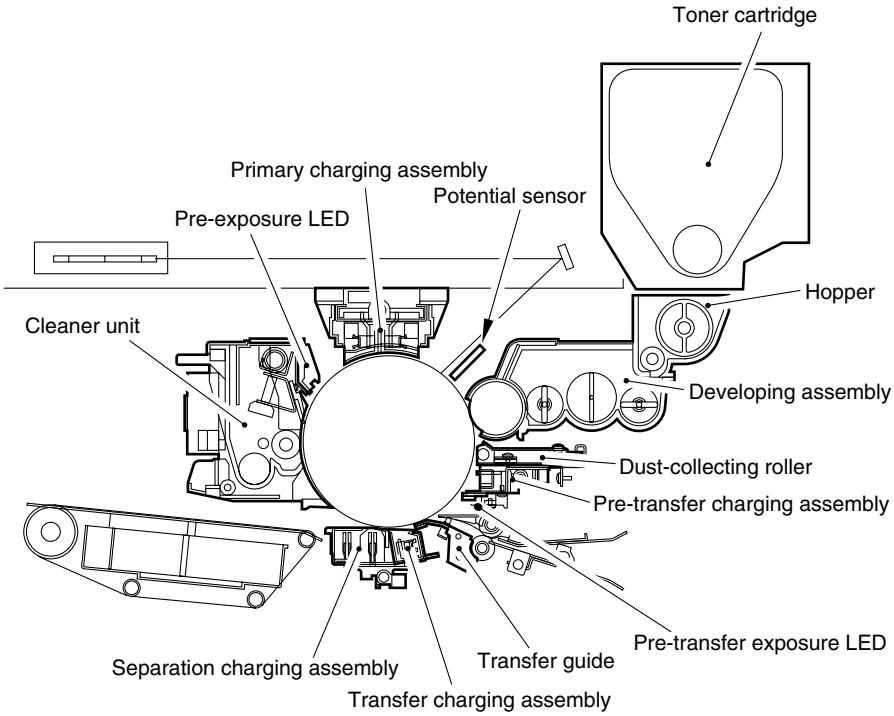
7.1 Outline

F02-701-01 shows the major components of the image formation system, and F02-701-02 shows the basic sequence of operations:

The major changes made in the image formation system include the following:

- Photosensitive drum
- Pre-transfer exposure LED (addition)
- Developing unit overheating preventive mechanism

For other items, see T02-702-01 (comparison table).



F02-701-01

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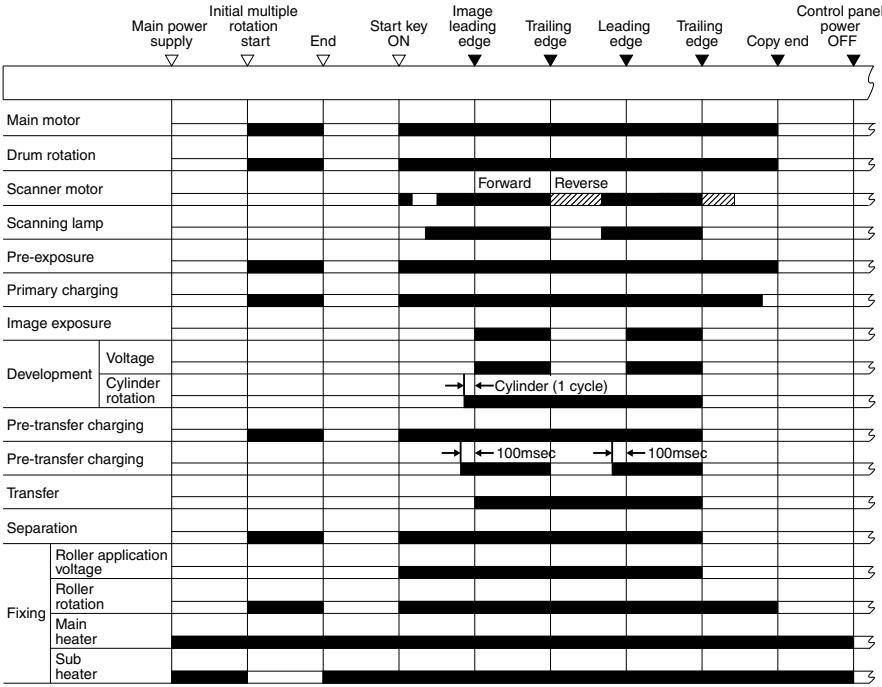
Main power supply
Initial multiple rotation start
End
Start key ON
Image leading edge
Trailing edge
Leading edge
Trailing edge
Copy end
Control panel power OFF
Main motor
Drum rotation
Scanner motor
Forward
Reverse
Scanning lamp
Pre-exposure
Primary charging
Image exposure
Development
Voltage
Cylinder rotation
Cylinder (1 cycle)
Pre-transfer charging
Pre-transfer charging
100msec
100msec
Transfer
Separation
Fixing
Roller application voltage
Roller rotation
Main heater
Sub heater

F02-701-02

7.2 Changes in the Image formation System

Unit/location	Changes to GP605	Purpose	Remarks	Reference
Photosensitive drum	Increase in the charging ability of the photosensitive drum	To support the increase in speed		7.3 Photosensitive Drum
Pre-transfer charging assembly	Addition of a pre-transfer exposure unit	To increase the efficiency of separation		7.4 Pre-Transfer Exposure LED (addition)
Developing assembly	Addition of a developing fan for cooling the developing assembly at the front	To cool the developing assembly		7.6 Developing Fan
	Changing the shape of the developing cylinder cover to a heat-sink configuration	To increase the efficiency of charging the developing assembly		7.7 Revising the Developing Cylinder Cover
	Using 2-speed drive for the developing cylinder	To prevent overheating of the developing assembly		7.8 2-Speed Drive of the Developing Cylinder
Transfer separation charging assembly	Change in the height of the transfer wire 9.1 ±0.4 mm	To improve transfer	In the case of the GP605, 9.6 ±0.4 mm	
	Change in the height of the No. 2 separation wire (17.1 ±0.3 mm; other charging wires are the same as those of the GP605)	To improve separation	In the case of the GP605, 15.7 ±0.3 mm	
	Using high frequency of the separation AC voltage (10.0 kV/2 kHz)	To improve separation	In the case of the GP605, 10.5 kV/700 Hz	

T02-702-01

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7.3 Photosensitive Drum

The machine's photosensitive drum has a higher degree of charging ability than that of the GP605.

7.4 Pre-Transfer Exposure LED (addition)

The machine uses processing speed of 450 mm/sec (as opposed to 300 mm/sec of the GP605), to enable the generation of 85 copies per minute (iR8500: A4, Direct), in the case of the iR7200, 72 copies per minute because of the increased distance between sheets.

To make up for the reduction in the strength of charging on the photosensitive drum, the machine uses a photosensitive drum with a higher charging ability. The wave length of the light emitted by the pre-exposure lamp is 660 nm, made shorter to eliminate residual charges and to ensure a specific volume of charge.

In addition, to make up for the possible decrease in the power of separation caused by a higher process speed, the following pre-transfer exposure LED is used:

Pre-Transfer Exposure	
Function:	At the beginning of the transfer process, the photosensitive drum potential (white background potential) is reduced by removing charges, and the static bond between the photosensitive drum and the transfer medium is weakened to facilitate separation.
Wave length:	700 nm
Timing of activation:	The LED is kept ON between a point in time 100 msec before the leading edge of the image reaches the point of light emission of the LED and a point in time when the trailing edge of the image moves past it (See F02-701-02).

7.5 Preventing Overheating of the Developing Unit

The increase in the process speed could lead to overheating of the developing unit; particularly, if double-sided mode is used continuously for a long time, the heat occurring when fixing the first side will cause the developing unit to overheat, affecting the toner and causing foggy images. To prevent overheating, the following are used:

- Addition of a development fan
- Revising the developing cylinder cover
- Using 2-speed drive of the developing cylinder

7.6 Development Fan

To prevent overheating of the developing assembly [1], the machine is equipped with a developing fan [2] at its front (See 10.2).

7.7 Revising the Developing Cylinder Cover

The developing cylinder cover [3] is given a heat-sink shape, to promote the discharge of heat. In addition, a heat pipe [4] is laid behind the developing cylinder cover (F02-707-01). The heat pipe has a high degree of heat conductivity, and the air cooled by the development fan serves to cool the front of the heat pipe, ultimately cooling the area all the way to the rear of the machine ad the entire face of the developing cylinder cover and, thus, the developing assembly.

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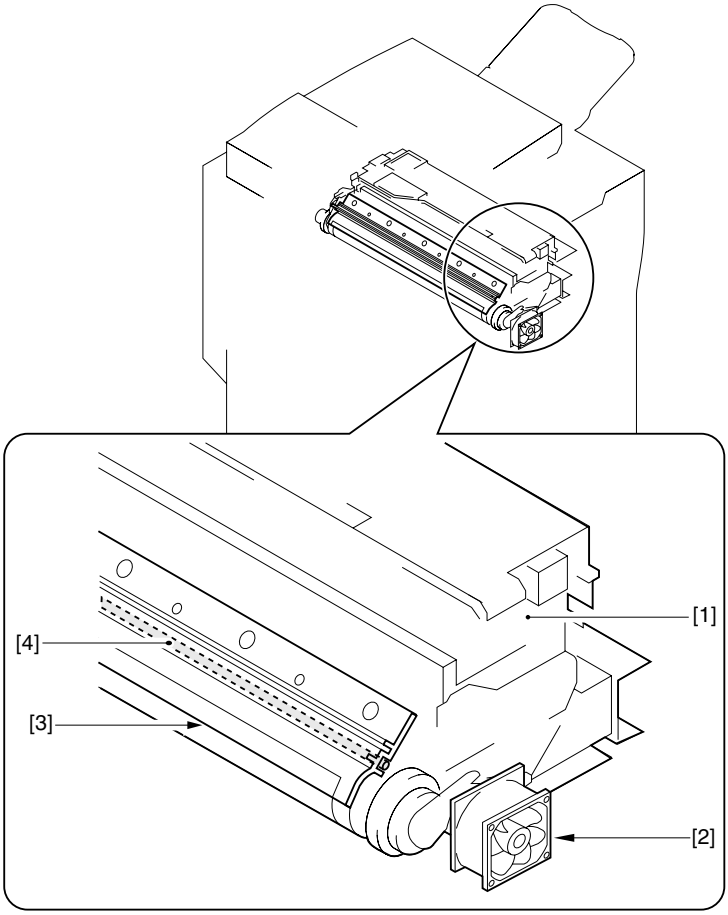

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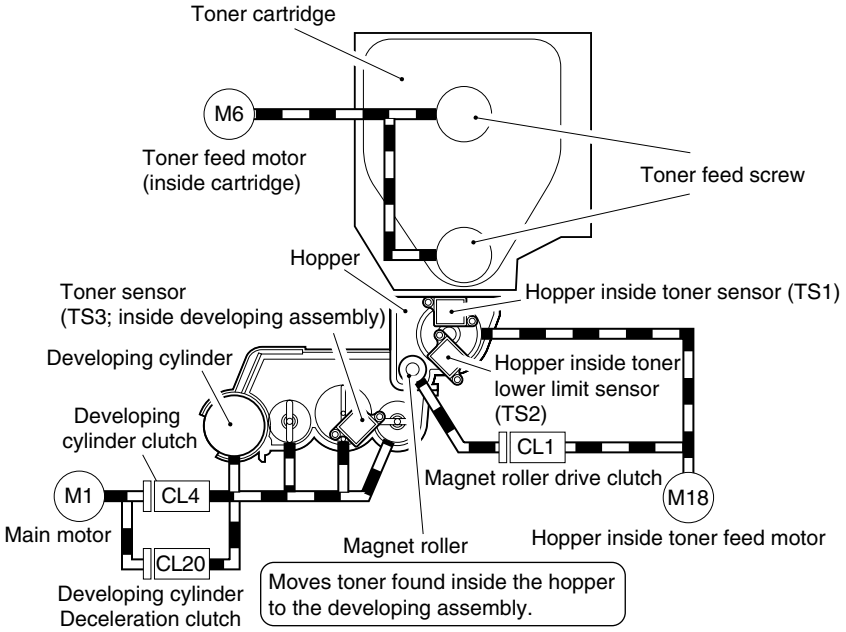
7.8 2-Speed Drive of the Developing Cylinder

When double-sided copying is used continuously for a long time in a high-temperature/humidity environment, the friction between the developing cylinder and the developing blade will increase the heat used to coat toner to the developing cylinder, causing foggy images and low density. In view of this, in a high-temperature/humidity environment, the peripheral speed of the cylinder is reduced to prevent overheating otherwise caused by friction.

The peripheral speed of the developing cylinder may be either standard speed (default) or low-speed, which are switched over with reference to two slice levels: a room temperature of 27°C or an absolute moisture content in the air of 16 g/kg. The machine switches to low speed if either of the slice levels is exceeded (while the developing cylinder is not rotating following the measurement by the environment sensor initiated in response to a pickup command).

The switching clutch is arranged as shown in F02-708-01, and the gear is engaged to change the drive from the main motor: for standard speed (default), the developing cylinder clutch is turned on as in the exiting machine while for low speed, the deceleration clutch is turn ON.



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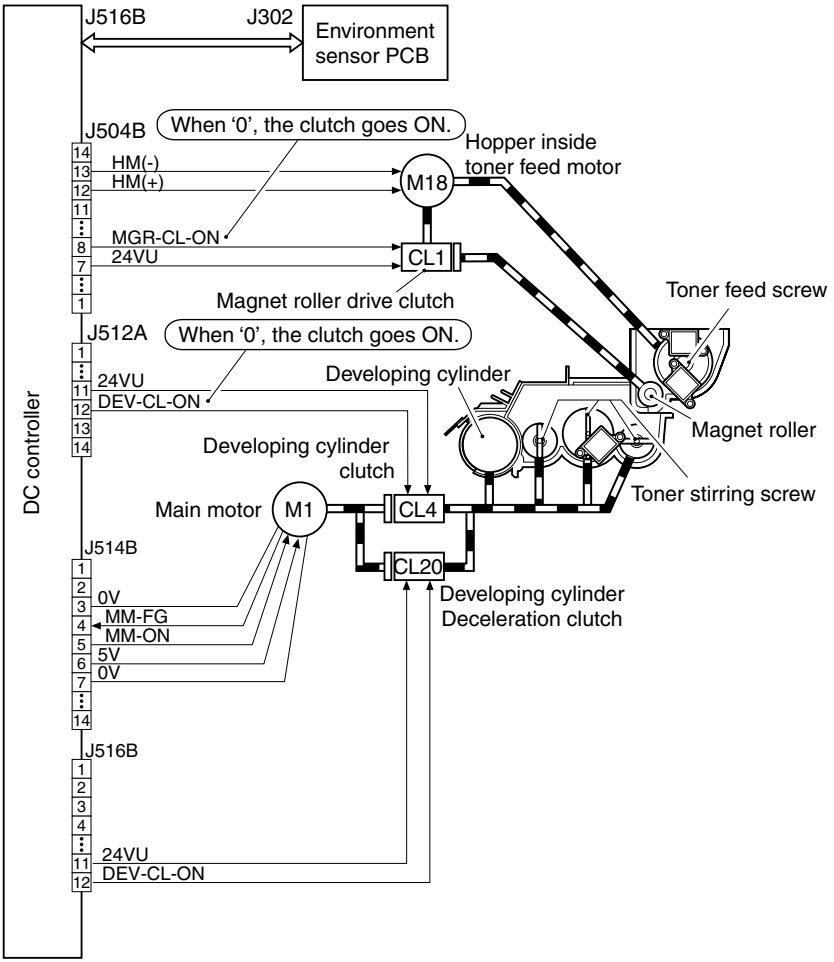
The construction of the control system related to the developing assembly drive mechanisms is following:



F02-708-02

7.9 Disassembly/Assembly

The mechanical characteristics of the machine are as described herein; assemble/assemble the machine as instructed and with the following in mind:

1. ⚠ Before starting any disassembly/assembly work, turn off the main power switch, and disconnect the power plug.
2. Unless otherwise specifically instructed, assemble the machine by reversing the steps used to disassemble it.
3. Identify the screws by type (length, diameter) and location.
4. To protect against static charge, one of the mounting screws of the rear cover comes with a toothed washer. Be sure not to leave out the washer when assembling the machine.
5. To ensure electrical continuity, the mounting screw for the grounding wire and the varistor comes with a washer. Be sure not to leave out the washer when assembling the machine.
6. As a rule, do not operate the machine with any of its parts removed.
7. When sliding out the duplex feeder unit or the fixing assembly, be sure to turn off the front cover switch or the power switch.

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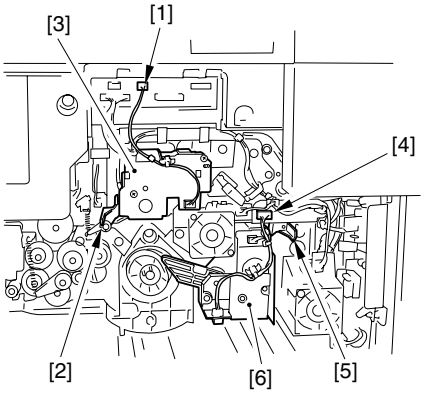
7.9.1 Process Unit

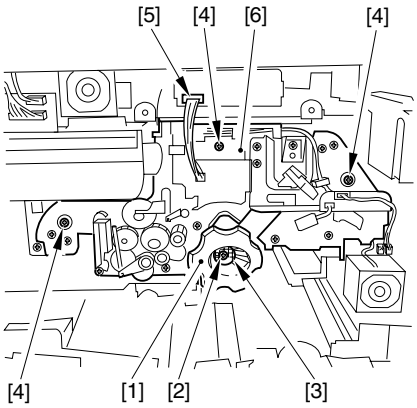
a. Removing the Process Unit

1) Remove the developing assembly.
2) Remove the process unit cover (4 screws).
3) Slide out the fixing/feeder unit.
4) Remove the fixing toner cover; take out the drum protective sheet; and lay it over the fixing/feeder unit.
5) Disconnect the connector [1], and release the stopper lever [2]; then, detach the primary charging assembly [3].
6) Disconnect the connector [4], and release the stopper lever [5]; then, detach the pre-transfer charging assembly [6].



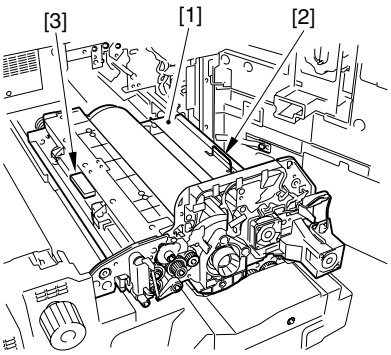
F02-709-01

7) While using the drum stop [1] (found inside the compartment behind the front cover) to fix the drum in place, remove the screw [2], and detach the drum fixing block [3].
8) Detach the drum stopper [1].
9) Remove the 3 screws [4], and disconnect the connector [5]; then, slide out the process unit [6].



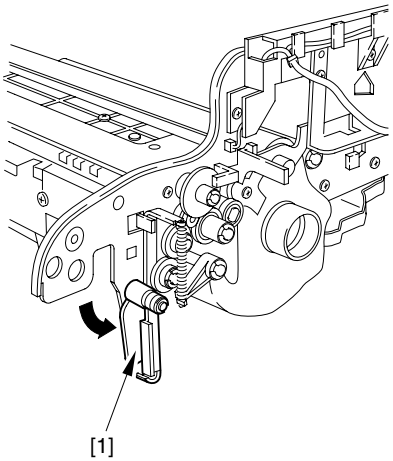
F02-709-02

10) Slide fully out the process unit [1], and pull out the grip [2] on the right side.
11) Holding the grip [2] on the right and the grip [3] on the left, lift it upward.



F02-709-03

When replacing the removed process unit, turn the kit support plate [1] counterclockwise, and be sure to create a gap from the floor to prevent damage.



F02-709-04

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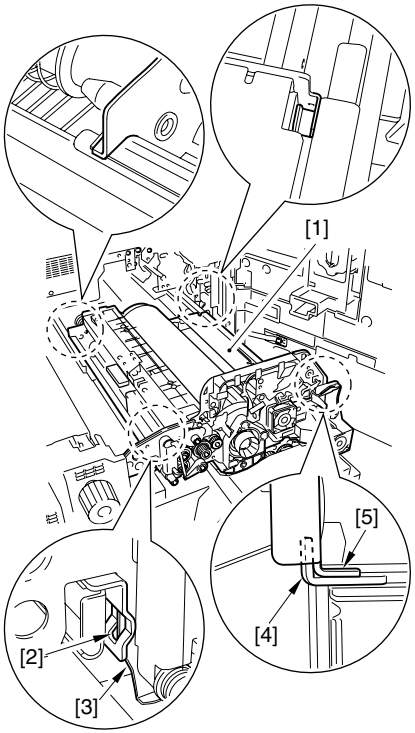
b. Mounting the Process Unit

Keep the following in mind when mounting the process unit [1] to the slide rail:

1) Be sure to match the notch [2] found at the tip of the left slide rail against the front plate [3] of the process unit.
2) Be sure to match the bend [4] at the front of the right slide rail against the front plate [3] of the process unit.

Waste toner can drop on the duplex unit when the process unit is removed. After mounting the process unit. be sure to slide out the duplex unit and remove the waste toner.



F02-709-05

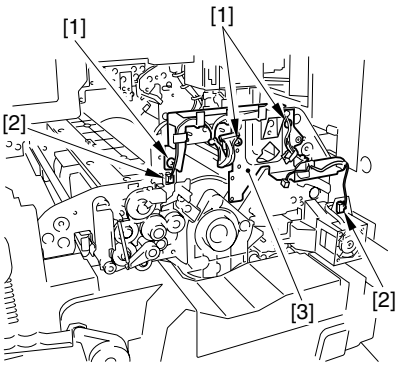
c. Removing the Photosensitive Drum

Points to Note When Handling the Photosensitive Drum
The machine's photosensitive drum is made of high-sensitivity amorphous silicon, and thus its sensitivity can deteriorate if it or the process unit is not placed properly. When handling the process unit or the photosensitive drum, keep the following in mind:

1. If you have removed the process unit from the machine, protect the photosensitive drum from light by using the photosensitive drum protection sheet or by wrapping 6 or more A3 or larger sheets.
2. Do not place the process unit or the photosensitive drum in an area exposed to direct rays of the sun.
3. Do not place the process unit or the photosensitive drum in an area subject to high temperature/humidity or low temperature/humidity or rapid changes in temperature or humidly.
4. Do not place the process unit or the photosensitive drum in an area subject to dust, ammonium gas, or organic solvent gas.

The foregoing equally holds true for the photosensitive drums of all models.

1) Remove the developing fan (See 10.4.3.f.).
2) Slide out the process unit (See 7.9.1.a.).
3) Remove the 3 screws [1], and disconnect the 2 connectors [2]; then, detach the sub plate assembly [3].



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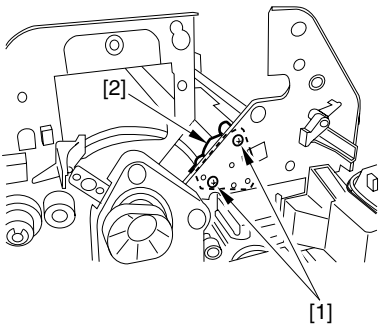
4) Remove the 2 screws [1], and detach the positioner holder [2].



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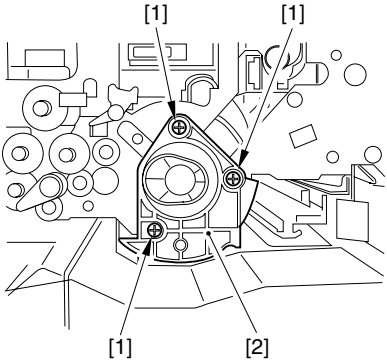
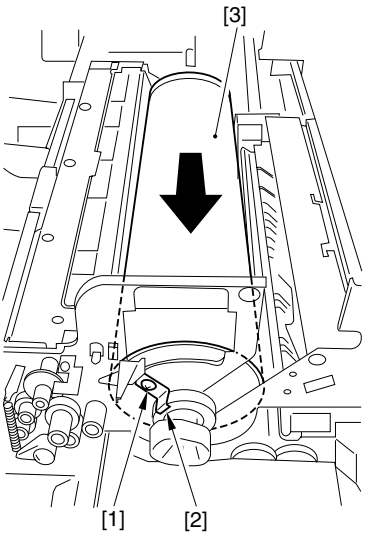
5) Remove the 3 screws [1], and detach the drum fixing plate [2].



F02-709-08

6) Remove the screw [1], and detach the bearing stopper [2]; then, shift the photosensitive drum [3] to the front (in the direction of the arrow) to lift.



F02-709-09

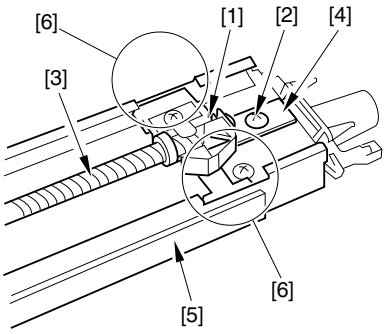
7.9.2 Charging Wires

a. Outline

As many as 3 charging wires are found around the photosensitive drum (primary, pre-transfer, transfer/separation); these wires are 0.06 mm in diameter.

b. Removing the Wire Cleaner for the Primary Charging Assembly

1) Remove the primary charging assembly (See 7.9.1.a.).
2) Move the clip base [1] fully to the rear, and remove the screw [2]; then, remove the support plate [4] of the wire clean motor shaft [3], and detach the clip base [1] from the cut-off [6] of the shielding plate [5] together with the wire cleaner motor shaft [3].



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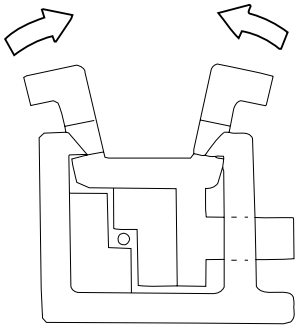
3) Pick the wire cleaner with small pliers, and free the hook with your fingers.

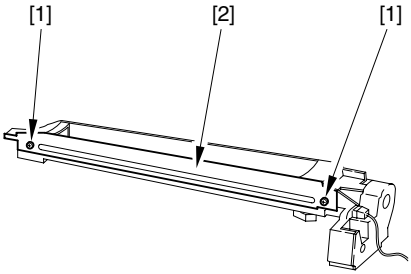


F02-709-11

c. Stringing the Charging Wire

As a rule, the charging wire (except the grid wire) may be strung in the same way for all charging assemblies. The following uses the primary charging assembly as an example:

1) Remove the 2 screws [1], and detach the shielding plate (left, right) [2] of the charging assembly.
   To prevent deformation (slack) of the primary charging assembly, be sure to work on the left and right shielding plates separately (Do not loosen the screw for the left/right shielding plate).
2) Remove the wire cleaner.



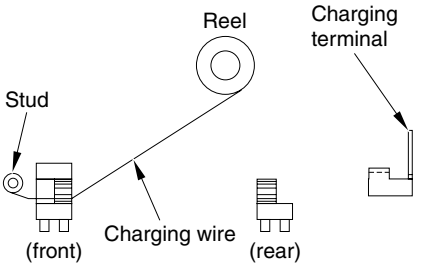
F02-709-12

For other charging assemblies, remove the lid (2 pc.).

3) Free a length of about 5 cm from a charging wire reel (wire dia. of 0.06 mm), and form a loop at the end about 2 mm in diameter.

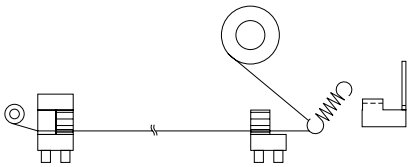
Memo

To form a loop, wind the charging wire once around a hex key, and twist the key 3 to 4 times.



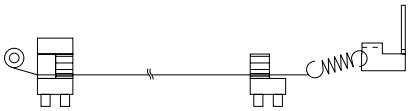
F02-709-13

4) Cut the end (excess) for the twisted charging wire.
5) Hook the loop on the stud.
6) Hook the charging wire on the charging wire positioner at the rear, and hook the charging wire tension spring on the charging wire, and twist it.



F02-709-14

7) Cut the excess of the charging wire with a nipper.
8) Pick the end of the charging wire tension spring with tweezers, and hook it on the charging wire terminal. In the case of the pre-transfer charging assembly, hook the spring at the front.



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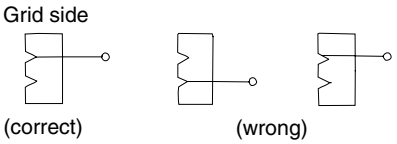
Be sure of the following:
- The charging wire is free of bends and twists.
- The charging wire is in the bottom of the V-groove of the charging wire positioner.



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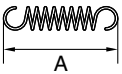
9) Fit the cushion to the front of the charging wire (except for primary charging assembly).
10) Mount the shielding plate (left, right).

For other charging assemblies, fit the lid (2 pc.).

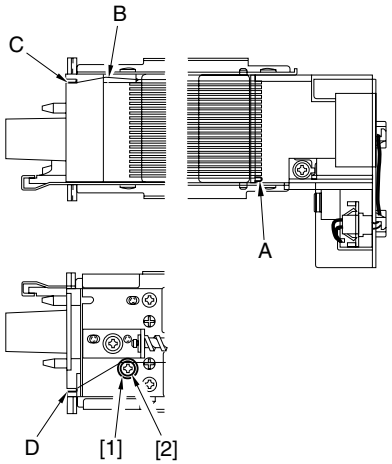
After stringing the charging wire of each charging assembly, check to make sure that the length of the tension spring is as follows:

Primary charging assembly	A=12.0±1mm	
Pre-transfer charging assembly	A=12.0±1mm	
Transfer charging assembly	A=12.0±0.5mm	
Separation charging assembly	A=12.0±0.5mm	

11) Mount the wire cleaner. At this time, pay attention to the orientation of the wire cleaner.
12) Wipe the charging wire with lint-free paper moistened with alcohol.

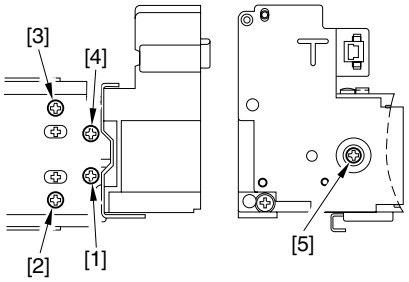
d. Stringing the Grid of the Primary Charging Assembly

1) Check to make sure that the 4 screws used to keep the front/rear block and shielding plate are not loose.
Then, hook the end of the charging wire on stud A, and then route it for 41 runs; then, hook it on B, C, and D; thereafter, fit it between the double washers [1], give a 1/2 turn around the screw [2], and secure it in place.



F02-709-17

2) Loosen the screws [1], [2], [3], [4]; then, tighten the screw [5] to a torque of 1.5 ±0.2 kg•cm. thereafter, tighten the screws [1], [2], [3], [4] to a torque of 8 kg•cm in the order indicated.



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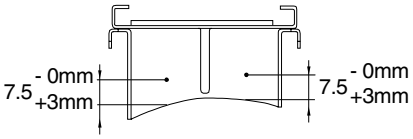
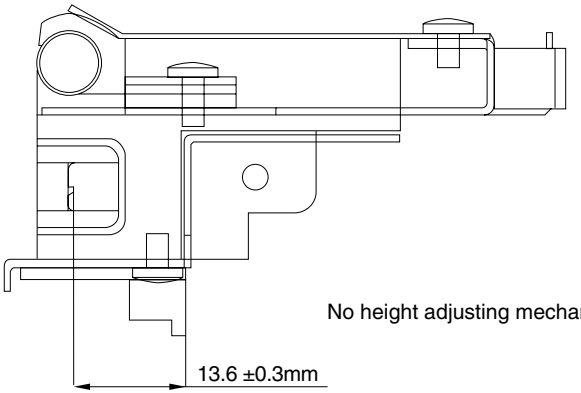
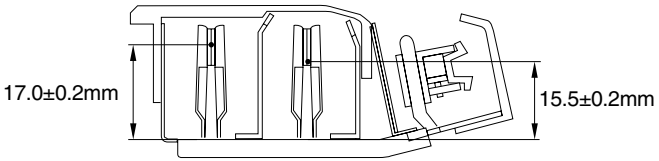
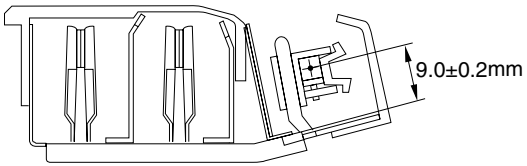
e. Adjusting the Height of the Charging Wire

Charging assembly	Height of charging wire
Primary	
Pre-transfer	
Separation	
Transfer	

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REF.

The height (position) of the primary and transfer charging wires may be adjusted by turning the screw found at the rear of the charging assembly. A full turn of the screw changes the position of the charging wire by about 0.7 mm.

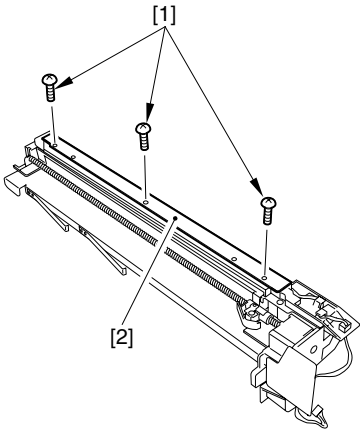
7.9.3 Area Around the Process Unit

a. Removing the Pre-Transfer Exposure LED

1) Slide out the pre-transfer charging assembly (See 7.9.1.a.).

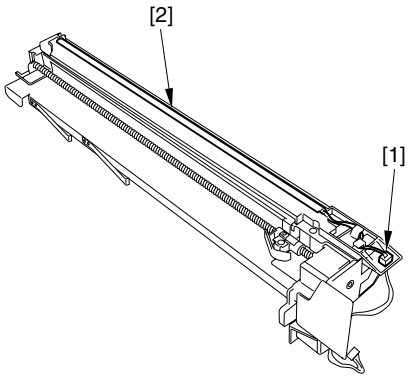
When placing the removed pre-transfer charging assembly, be sure to take care not to subject the LED to impact.

2) Turn over the pre-transfer charging assembly, and remove the 3 screws [1] found on the bottom; then, detach the LED cover [2].



F02-709-20

3) Disconnect the connector [1], and remove the pre-transfer exposure LED [2].



F02-709-21

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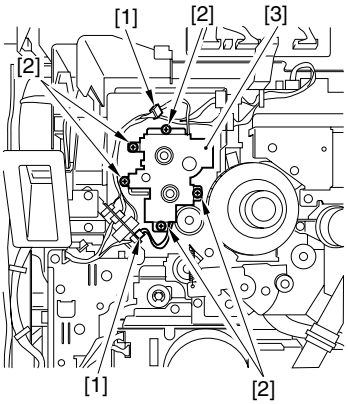
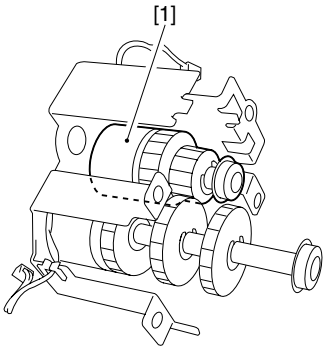
b. Remove the Developing Cylinder Deceleration Clutch

1) Remove the high-voltage transformer (DC) assembly (See 10.4.7.c.).
2) Remove the flywheel.
3) Disconnect the 2 connectors [1], and remove the 5 screws [2]; then, detach the clutch mounting plate [3].



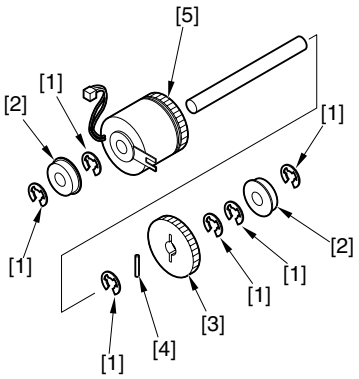
F02-709-22

4) Remove the heater developing cylinder deceleration clutch [1].



F02-709-23

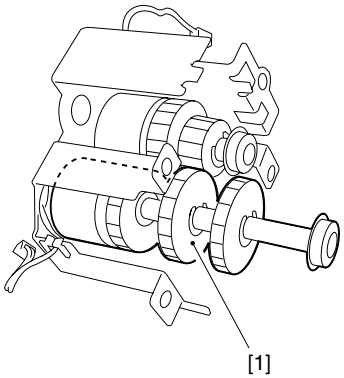
5) Remove the 6 E-rings [1], 2 bearings [2], gear [3], and pin [4]; then, detach the clutch [5].



F02-709-24

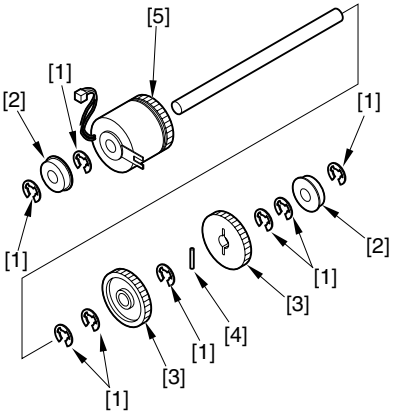
c. Remove the Developing Cylinder Clutch

1) Remove the clutch mounting plate.
2) Take out the developing cylinder clutch [1].



F02-709-25

3) Remove the 8 E-rings [1], 2 beatings [2], 2 gears [3], and pin [4]; then, detach the clutch [5].



F02-709-26

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8 Pickup/Feeding System

8.1 Outline

The following major change has been made to the pickup/feed system:

- Inclusion of index sheets as a transfer medium

For others, see T02-802-01 (comparison table).

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8.2 Changes to the Pickup/Feed System (iR8500)

Unit/location	Changes to GP605	Purpose	Remarks	Reference
Pickup roller	Reduction in the peripheral speed of the pickup roller	To prevent double feeding	To make up for the decrease in the ability to prevent double feeding caused by higher speed, the feed speed of the pickup roller is now 400 mm/sec. right/left deck, cassette 3/4, side paper deck (not change to manual feed tray) right deck, cassette 3/4 Upwardly compatible: right deck	
Static eliminator	Addition of a static eliminator	To prevent noise, to ground the pull-off roller	Upwardly compatible: right deck, cassette 3/4	
Manual feed tray assembly	Addition of a noise damper	To reduce the noise cause by collision when the pickup roller is withdrawn		
Registration roller assembly	Change in the registration brake clutch	A thumbscrew is used to join the shaft and the clutch to prevent increase in variation of the leading edge registration caused by high-speed operation.		
	Change to the shape of the lower registration roller shaft	To accommodate the change in the shape of the shaft end made to accommodate the use of a clutch secured by a thumbscrew		
	Change to the shape of the registration clutch cover	To accommodate the change in the shape of the cover made to accommodate the use of a clutch secured by a thumbscrew		
	Addition of a coupling gear	To eliminate uneven transmission of drive caused by fluctuation in the load imposed on the coupling in the registration transfer assembly, a ball bearing is added to the coupling gear, thereby reducing wobbling of the gear		
Index paper attachment	Support of index sheets	To accommodate index sheets, an attachment has been made available as an option		8.4 Index Sheet Attachment

T02-802-01

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8.3 List of Changes Made to the Pickup/Feeding System (iR7200)

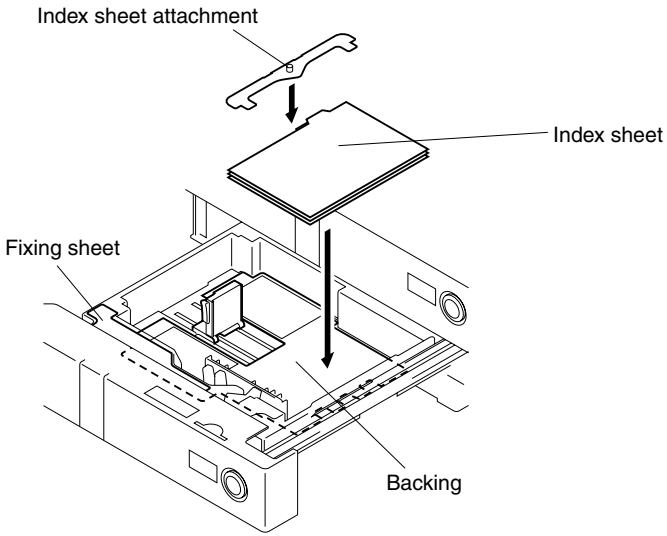
The differences from the GP605 are the same as those of the iR8500; the difference from the iR8500, on the other hand, lies in the reduced copying speed caused by the increased distance between sheets when paper is moved (from 85 sheets to 72 sheets).

8.4 Index Sheet Attachment

The machine allows the use of index sheets as a transfer medium.

Its user mode provides index sheet mode, and the installation of an Tab Feeding Attachment-A1 (option) enables insertion of an index sheet between sheets (index sheet insert mode) or printing on the index areas (index production mode).

The index cassette 3/4 selected on the control panel will be used as the source of index sheets. For details, see the User's Guide.



F02-804-01

8.5 Disassembly/Assembly

The mechanical characteristics of the machine are as described herein; disassemble/assemble the machine as instructed and with the following in mind:

1. ⚠ Before starting any disassembly/assembly work, turn off the main power switch, and disconnect the power plug.
2. Unless otherwise specifically instructed, assemble the machine by reversing the steps used to disassemble it.
3. Identify the screws by type (length, diameter) and location.
4. To protect against static charge, one of the mounting screws of the rear cover comes with a toothed washer. Be sure not to leave out the washer when assembling the machine.
5. To ensure electrical continuity, the mounting screw for the grounding wire and the varistor comes with a washer. Be sure not to leave out the washer when assembling the machine.
6. As a rule, do not operate the machine with any of its parts removed.
7. When sliding out the duplex feeder unit or the fixing assembly, be sure to turn off the front cover switch or the power switch.

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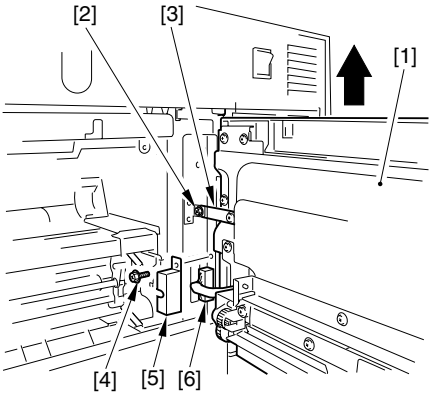
8.5.1 Manual Feed Tray Assembly

a. Removing the Manual Feed Tray Unit

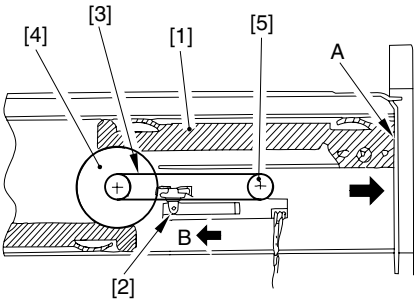
1) Remove the upper right cover (See 10.4.1.i./j.).
2) Open the manual feed tray unit [1].
3) Remove the screw [2], and detach the door tape [3] from the machine side.
4) Remove the screw [4], and detach the connector cover [5].
5) Disconnect the connector [6], and detach the manual feed tray unit [1] upward while it is kept open at about 90°.



F02-805-01

b. Fitting the Side Guide Timing Belt for the Manual Feed Tray Assembly

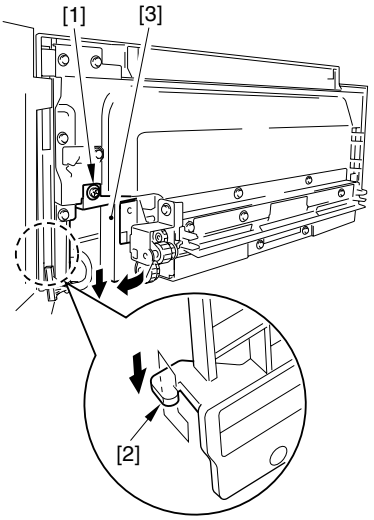
1) Butt the rack plate [1] of the manual feed tray against section A (in open state).
2) Move the slide volume [2] in the direction of B, and fit the timing belt [3] to the pulley [4] and the pulley [5].



F02-805-02

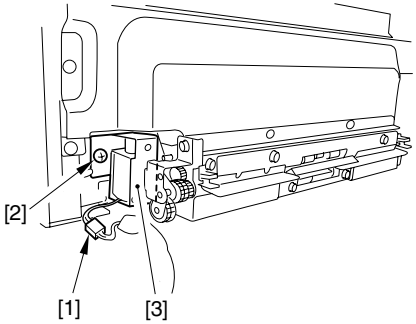
c. Removing the Manual Feed Tray Paper Sensor

1) Open the manual feed tray unit, and remove the cover tape from the machine side.
2) Remove the mounting screw [1], and detach the solenoid cover [3] (A claw [2] is hooked on the L-shaped opening; pull it down lightly, and move it as if to open it).



F02-805-03

3) Disconnect the connector [1].
4) Remove heater mounting screw [2], and detach the pickup roller releasing solenoid [3] together with the support plate.



F02-805-04

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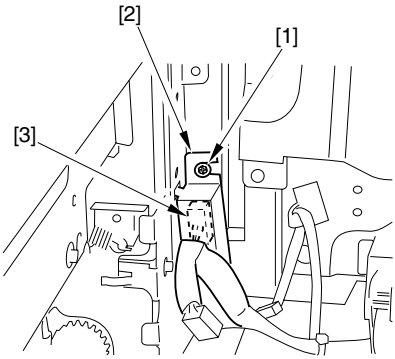
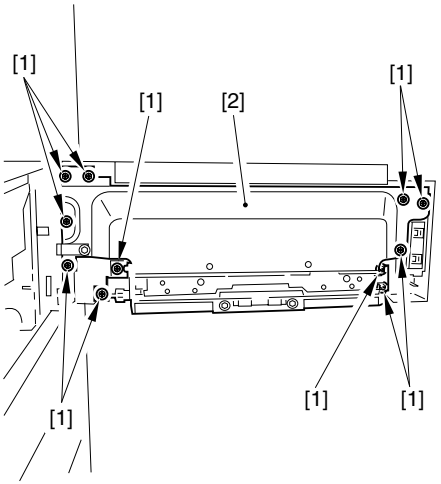
5) Remove the screw [1], and detach the connector cover [2]; then, disconnect the connector [3].



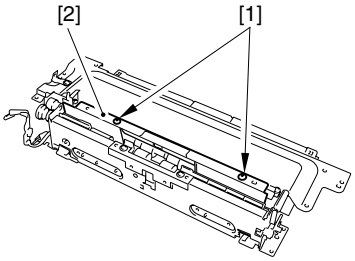
F02-805-05

6) Open the manual feed tray.
7) Remove the 11 mounting screws [1], and detach the manual feed tray pickup assembly [2].



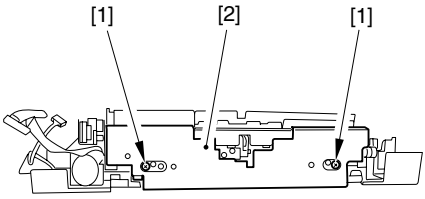
F02-805-06

8) Remove the 2 mounting screws [1], and detach the upper guide plate [2].



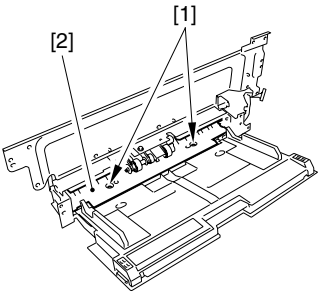
F02-805-07

9) Remove the 2 mounting screws [1] found at the bottom, and detach the lower cover [2].



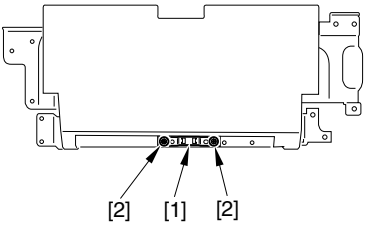
F02-805-08

10) Remove the 2 mounting screws [1], and detach the middle guide plate [2].



F02-805-09

11) Remove the 2 mounting screws [2] of the sensor unit [1].



F02-805-10

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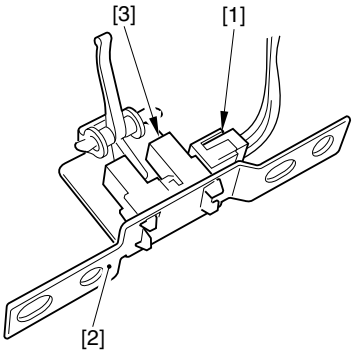
12) Disconnect the connector [1], and detach the sensor unit [2].
13) Remove the sensor [3] from the sensor unit [2].

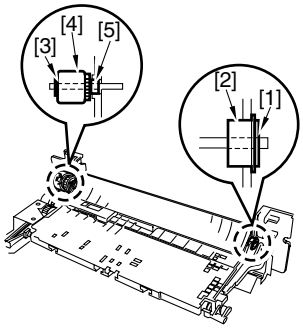


F02-805-11

8.5.2 Vertical Path Roller Assembly

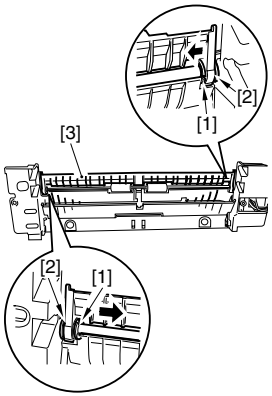
a. Removing the Vertical Path Roller 1/3/4

1) Remove the deck right/cassette pickup assembly.
2) Remove the E-ring [1] and the bearing [2] from the front, and remove the grip ring [3], clutch [4], and bearing [5] from the rear.



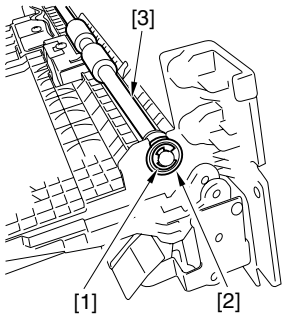
F02-805-12

3) Remove the E-ring [1] of the front and the rear of the roller shaft, and move the bearings [2] toward the inside; then, detach the guide plate [3].



F02-805-13

4) Remove the E-ring [1], and remove the bearing [2] to detach the vertical path roller [3].



F02-805-14

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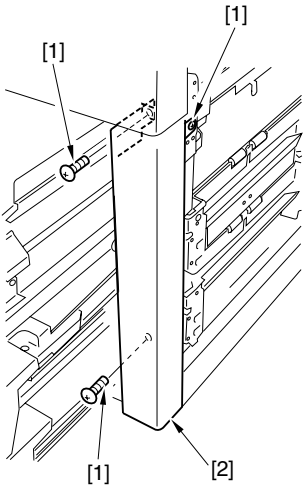
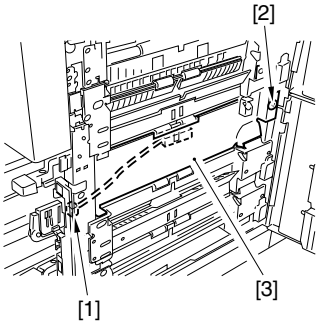
b. Removing the Vertical Path Roller 2

1) Slide out the deck (right) and the caste 3/4.
2) Remove the 3 screws [1], and detach the right lower front cover [2].



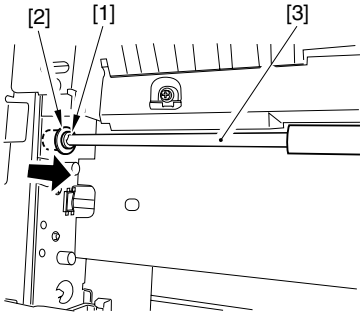
F02-805-15

3) Disconnect the connector [1] and the screw [2]; then, detach the guide plate [3].



F02-805-16

4) Remove the E-ring [1] at the front of the roller shaft, and move the bearing [2] toward the inside; then, detach the vertical path roller 2 [3].

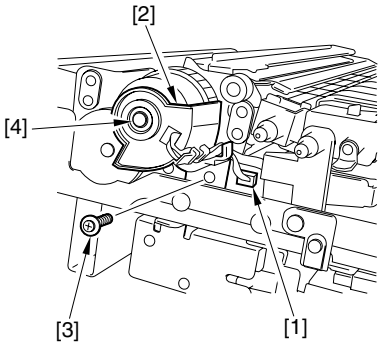


F02-805-17

8.5.3 Registration Feed Assembly

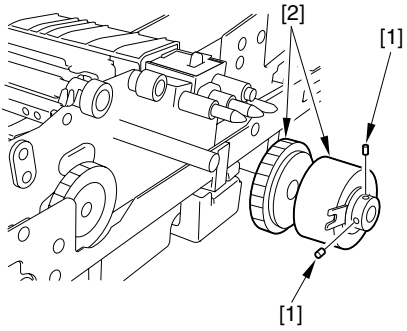
a. Removing the Registration Clutch

1) Remove the fixing/feed unit (See 8.5.5.a.).
2) Shift up the releasing lever.
3) Disconnect the connector [1], and detach the harness of the clutch from the clutch cover [2].
4) Remove the screw [3], and detach the clutch cover [2] and the bearing [4].



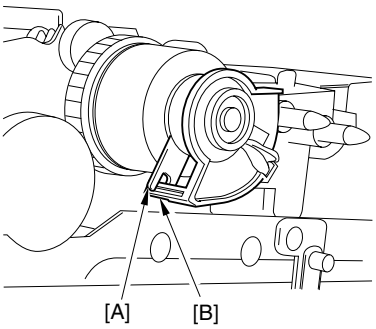
F02-805-18

5) Loosen the 2 adjusting screws [1], and detach the registration clutch [2].



F02-805-19

When mounting the registration clutch, be sure to hook the clutch stop [A] on the protrusion [B] of the clutch cover.



F02-805-20

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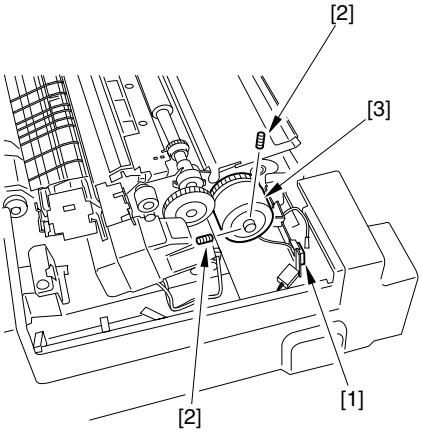
b. Removing the Registration Brake Clutch

1) Remove the transfer separation charging assembly front cover (1 screw).
2) Disconnect the connector [1], and loosen the 2 screws [2] (w/ hex hole); then, detach the registration brake clutch [3].

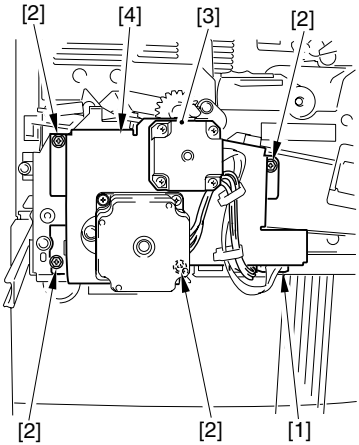


F02-805-21

8.5.4 Duplexing Unit

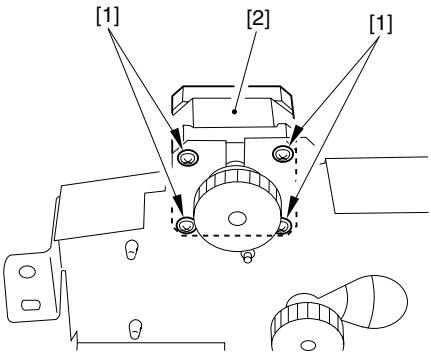
a. Removing the Reversal Motor

1) Remove the front cover of the duplexing unit.
2) Disconnect he two connectors [1], and remove the four screws [2] then, detach the reversal motor [3] together with the motor support plate [4].



F02-805-22

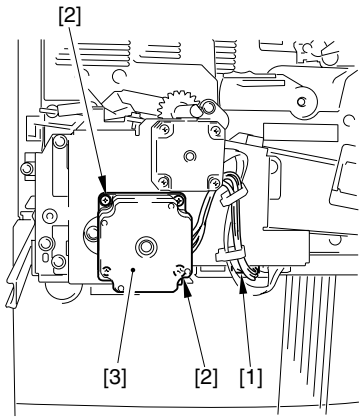
3) Remove the four screws [1], and detach the reversal motor [2].



F02-805-23

b. Removing the Lower Feed Motor

1) Remove the duplexing unit front cover (four screws, three knobs).
2) Disconnect the connector [1], and remove the two screws [2]; then, detach the lower feed motor [3].



F02-805-24

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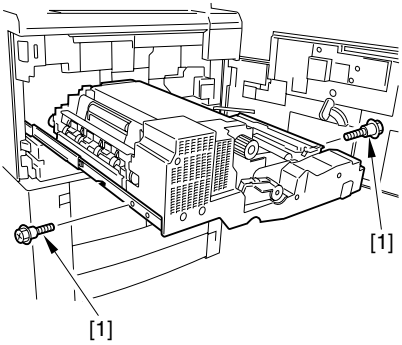
8.5.5 Others

a. Removing the Fixing/Feed Unit

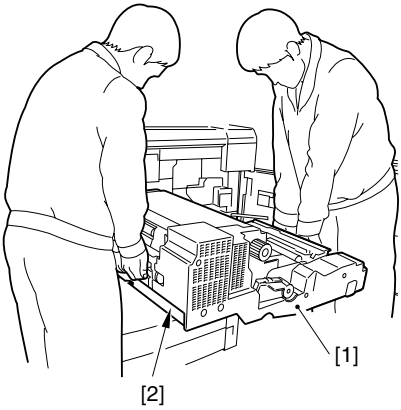
1) Slide out the fixing/feed unit.
2) Remove the 2 stepped screws [1].



F02-805-25

3) Remove the fixing /feed unit [1] from the slide rail [2].

Be sure to work as a group of two.



F02-805-26

9 Fixing System

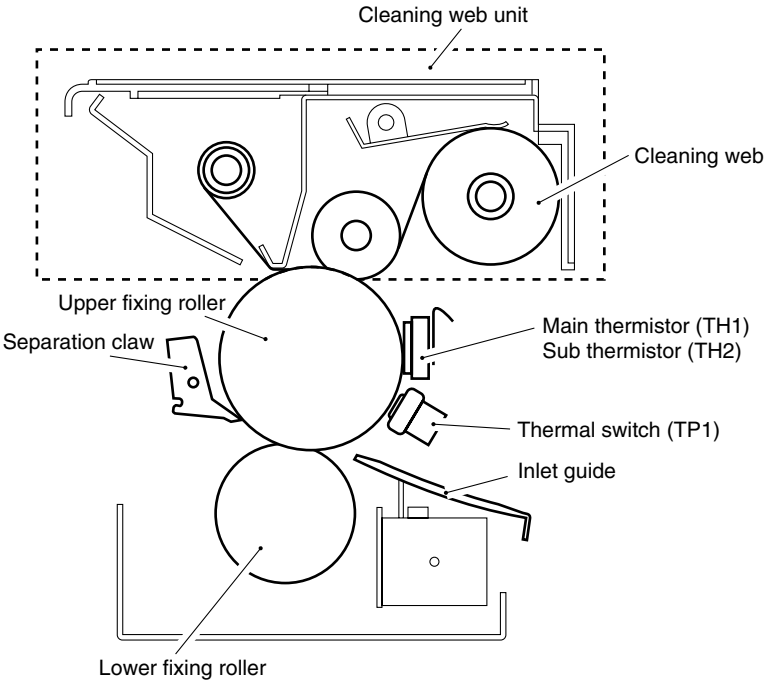
9.1 Outline

The following are major changes related to fixing:

- Controlling the fixing temperature to 198°C also in feeding
- Increase in the power of the fixing heater

For others, see T02-902-01 (comparison table).

F02-901-01 and F02-901-02 show the major components of the fixing system.



F02-901-01

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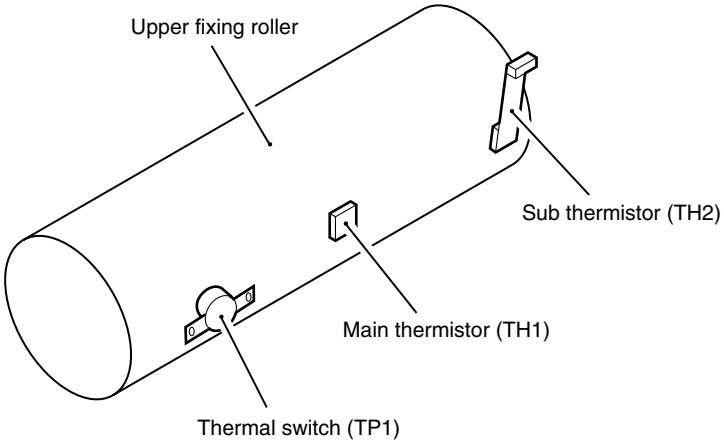

F02-901-02

Component	Notation	Description	
		iR8500	iR7200
Upper fixing roller		Heater roller, 60-mm dia.	
Lower fixing roller		Pressure roller, 50-mm dia.	
Fixing motor	M3	DC motor, 33 W	
Main heater	H1	100V model: 1000 W	800W
		208V model: 900 W	
		230V model: 965 W	
Sub heater	H2	100V mode: 400 W	250W
		208V model: 600 W	
		230V model: 645 W	
Main thermistor	TH1	Temperature control, error detection	
Sub thermistor	TH2	Error detection	
Thermal switch	TP1	Operating temperature: 228°C	
Cleaning web		Driven by the web drive solenoid (SL2).	
		Large-size (B4 or larger): goes ON twice	
		Small-size (smaller than B4): goes ON once	
Inlet guide		Fixed	

T02-901-01

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9.2 Changes to the Fixing System

Unit/location	Changes to GP605	Purpose	Remarks	Reference
Fixing	Change to the fixing roller diameter (from 50 to 60 mm)	To support higher speed		
	Change to the pressure roller diameter (from 38 to 50 mm)	To support higher speed		
	Change to the web roller diameter (from 24 to 28 mm)	To support thermistor passage		
	Change to the web roller pressure (1.5 times as high)	To support thermistor passage		
	Eliminating the pressure roller insulating member	To support the larger diameter of the pressure roller		
	Fixing of the inlet guide swing mechanism in place	To improve feeding and to prevent wrinkling		
	Change to the distance to the pressure roller static eliminator (from 1.5 to 4 mm)	To prevent soiling of the back (of copies) by the pressure roller		
	Change to the control temperature (198°C for both standby and feeding)			9.3 Controlling the Fixing Temperature
	Change to the thermo switch	The edge temperature of the fixing assembly is higher than of the GP605	223°C → 228°C	
	Increase in the power (1500W/200V model, 1000W/100V)		In GP605 (iR600), 850W (100V/20A model)	9.1 Outline of the Fixing System
Separation claw	Change in the position of the separation claw	To reduce soiling of the edges of sheets		
	Change to the leading edge radius (from 70 μ to 50 μ)	To reduce jamming at the claws		
	Reduction in the holder escape pressure	To reduce damage to the roller		
	Change to the shape of the bottom of the holder	To reduce damage to the roller		
	Change to the shape of stopper of claw	To reduce damage to the roller		
Roller construction	Change to the number of internal delivery rollers (form 4 to 6)	To reduce curling		
	Change to the number of external delivery rollers (from 4 to 6)	To reduce curling		
	Change to the shape of the curl-reduction roller	To reduce curling		
Roller material	Use of a different material (internal delivery, reversal auxiliary, curl reducing roller)	To increase durability		
Delivery	Elimination of the curl guide	To support the external delivery roller with a collar		
Double-sided	Change to the reference for reversal sequence (to leading edge; all paper types)	To support tab sheets	In the case of the GP605, the reference is to the training edge.	

T02-902-01

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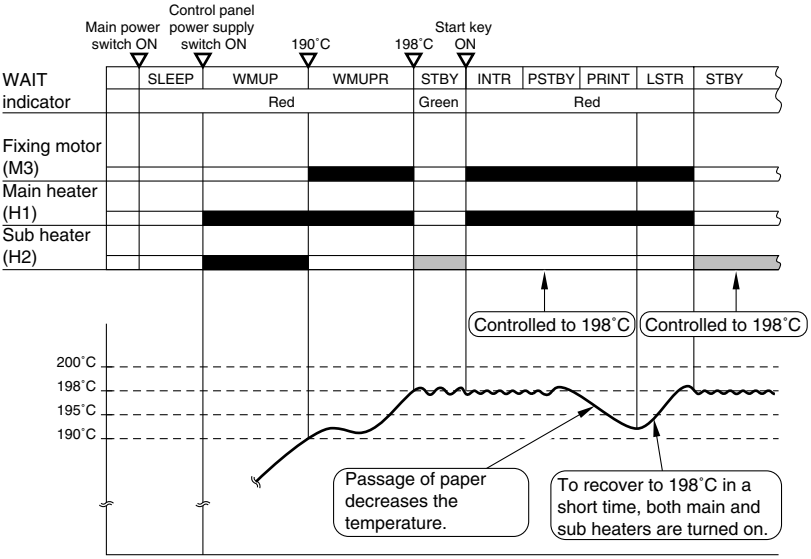
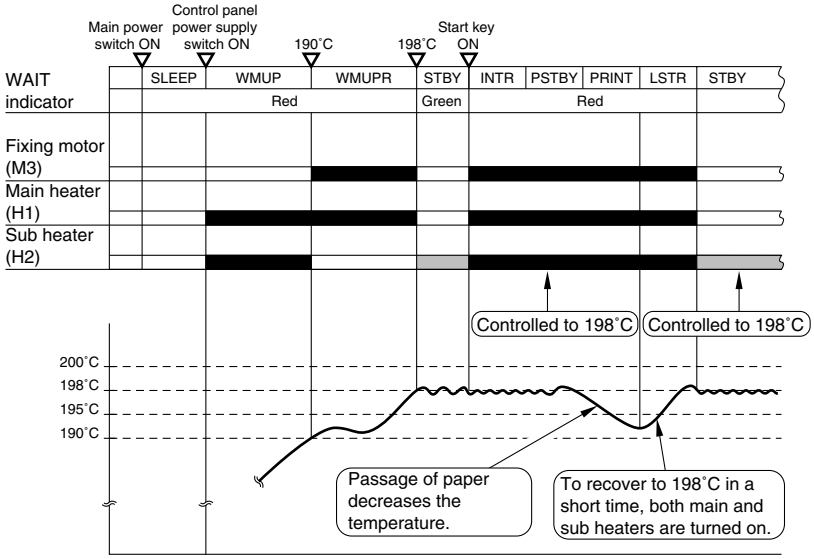
9.3 Controlling the Fixing Temperature

The basic sequence of operations of the fixing system is following:



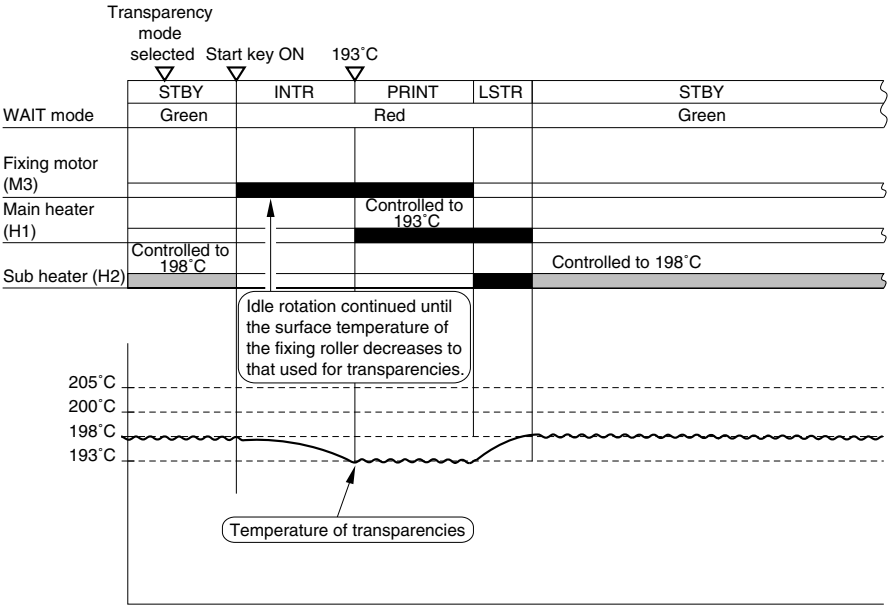
F02-903-01 (100V model)



F02-903-02 (208/230V model)

9.4 Transparency Mode

To prevent the wrapping of a transparency around the fixing roller (causing the heat of the fixing roller to melt the transparency), the surface temperature of the fixing roller is reduced in transparency mode. F02-904-01 shows the sequence of operations in transparency mode:



F02-904-01

COPIER>OPTION>BODY>OHP-TEMP
(switching of temperature setting in transparency mode)
0: 198°C [default]
1: 193°C
2: 188°C
3: 183°C

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9.5 Thick Paper Mode

The down sequence shift temperature is increased to prevent decreases in the surface temperature of the fixing roller when thick paper is moved past.

If thick paper is selected as paper type in user mode (common settings), the sequence for thick paper mode will be used.

COPIER>OPTION>BODY>FIX-TEMP
(setting the down sequence start temperature thick paper mode)

Setting	70 cpm	60 cpm	Suspend	Resume
0	194°C	193°C	183°C	198°C
1	189°C	188°C	178°C	193°C
2	184°C	183°C	173°C	188°C

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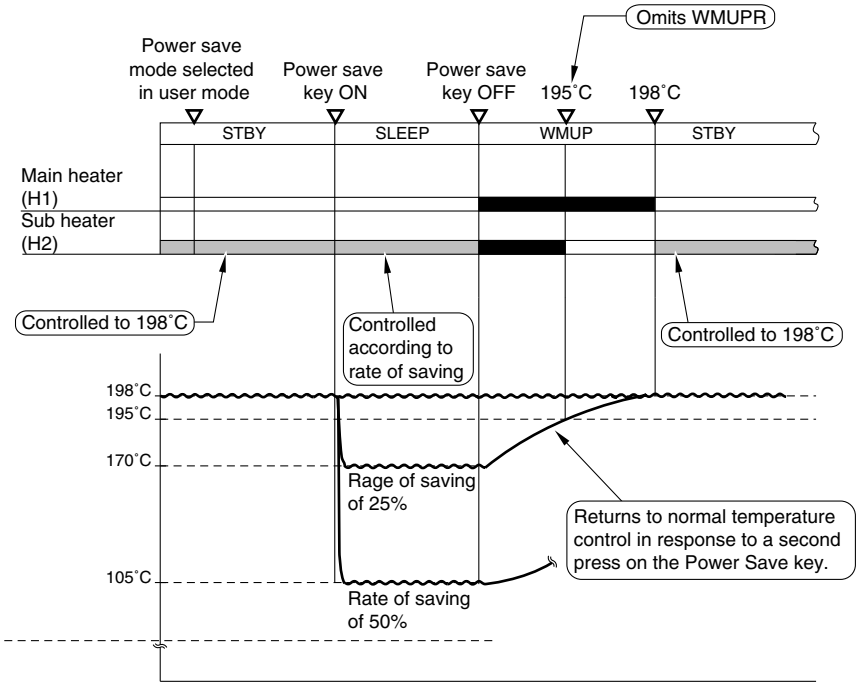
9.6 Power Save Mode

A press on the Power Save key on the control panel decreases the control temperature used in standby state, thereby decreasing the power consumption. F02-906-01 shows the sequence of operations in transparency mode.



F02-906-01

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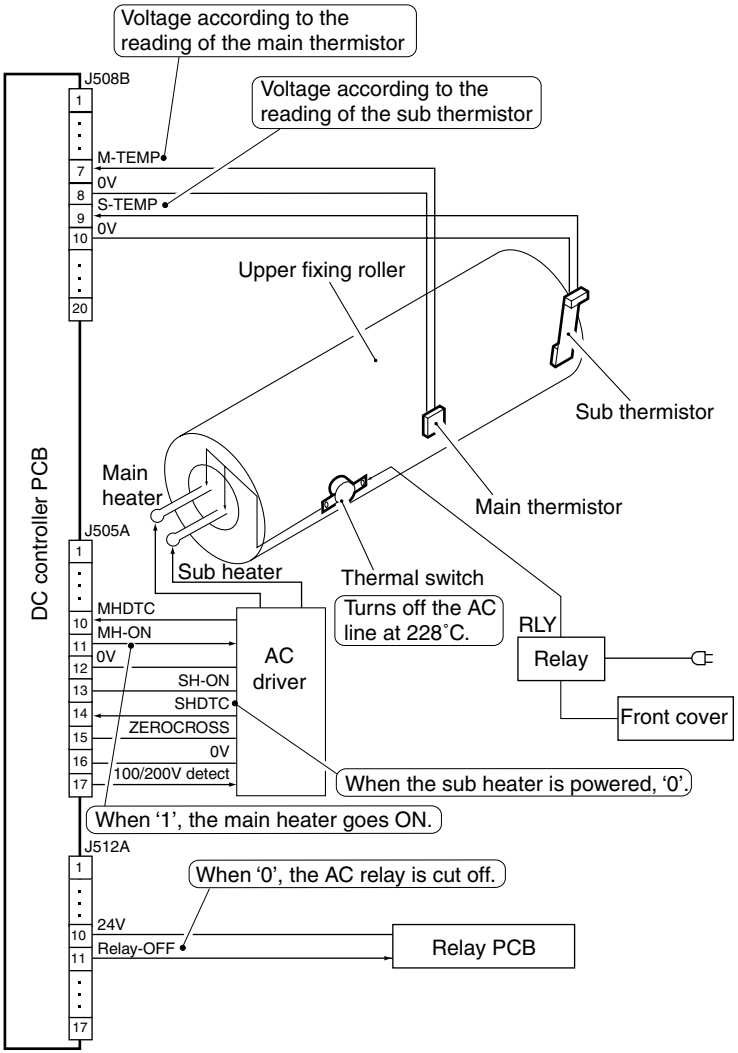
9.7 Error Detection

The following are checked in relation to the fixing temperature control mechanism:

[1] Temperature control error by the main thermistor (TH1)

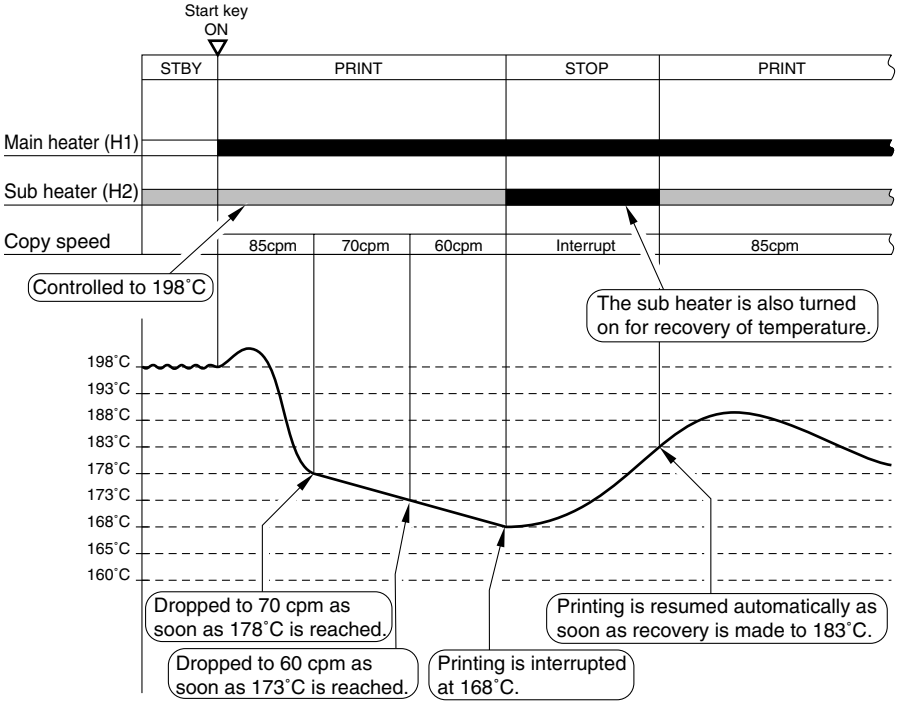
[2] Sensor error by the sub thermistor (TH2)

[3] Overheating error by the thermal switch (TP1)



F02-907-01

9.8 Down Sequence Control (100V)



F02-908-01 (Plain paper mode)

COPIER>OPTION>BODY>FIX-TMP1
A specific down sequence start temperature is selected according to the following table:

Setting	70 cpm	60 cpm	Suspend	Resume
Setting 0	183°C	178°C	173°C	188°C
Setting 1 (default)	178°C	173°C	168°C	183°C
Setting 2	173°C	168°C	163°C	178°C

T02-908-01 (Plain paper mode)

Select setting 0 to give priority to image quality; on the other hand, select setting 2 to give priority to speed.

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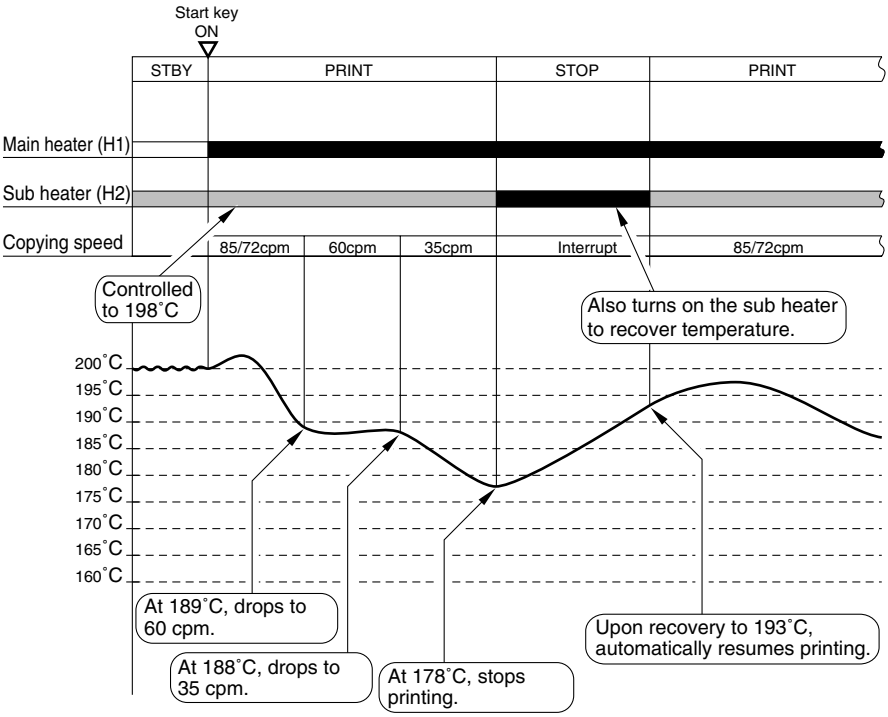

F02-908-02 (Thick paper mode)

COPIER>OPTION>BODY>FIX-TMP1

A specific down sequence start temperature is selected according to the following table:

Setting	60 cpm	35 cpm	Suspend	Resume
Setting 0	194°C	193°C	183°C	198°C
Setting 1 (default)	189°C	188°C	178°C	193°C
Setting 2	184°C	183°C	173°C	188°C

T02-908-02 (Thick paper mode)

Select '0' to place priority on image quality, or '2' to place priority on speed.

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9.9 Disassembly/Assembly

The mechanical characteristics of the machine are as described herein; disassemble/assemble the machine as instructed and with the following in mind:

1. ⚠ Before starting any disassembly/assembly work, turn off the main power switch, and disconnect the power plug.
2. Unless otherwise specifically instructed, assemble the machine by reversing the steps used to disassemble it.
3. Identify the screws by type (length, diameter) and location.
4. To protect against static charge, one of the mounting screws of the rear cover comes with a toothed washer. Be sure not to leave out the washer when assembling the machine.
5. To ensure electrical continuity, the mounting screw for the grounding wire and the varistor comes with a washer. Be sure not to leave out the washer when assembling the machine.
6. As a rule, do not operate the machine with any of its parts removed.
7. When sliding out the duplex feeder unit or the fixing assembly, be user to turn off the front cover switch or the power switch.

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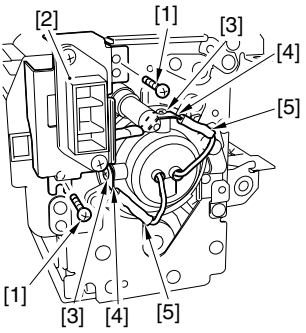
9.9.1 Fixing Heater and the Control Parts

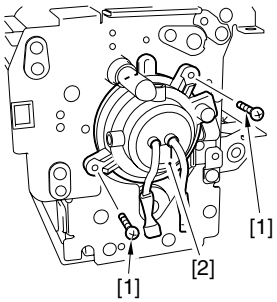
a. Removing the Main/Sub Heater

1) Remove the fixing assembly.
2) Remove the 2 screws [1], and detach the fixing connector unit [2]; then, remove the screw [3] and the terminal plate [4] at the rear to pull out the faston [5] (2 locations).



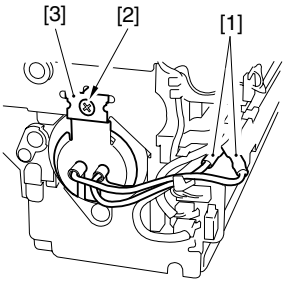
F02-909-01

3) Remove the 2 screw [1], and detach the heater positioning plate (rear) [2].



F02-909-02

4) Remove the 2 fastons [1] at the front, and remove the screw [2] to detach the heater positioning plate (front) [3].



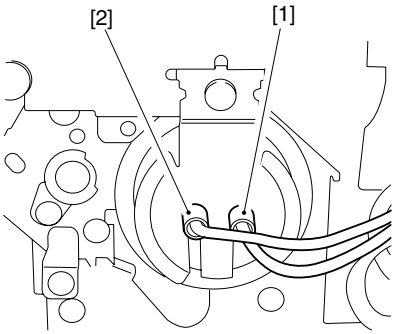
F02-909-03

5) Remove the main/sub heater.

b. Mounting the Main/Sub Heater

To mount the fixing heater, reverse the steps used to remove it with the following in mind:

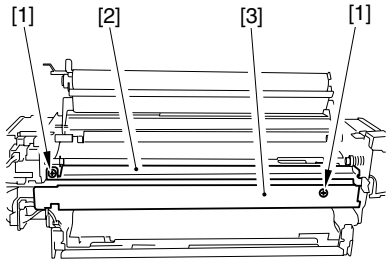
a. Do not touch the surface of the heater.
b. For both, mount the heater so that the side with the longer harness is to the front.
c. Viewing from the front of the fixing assembly, mount the main heater [1] to the right and the sub heater [2] to the left.



F02-909-04

c. Removing the Thermal Switch Unit

1) Remove the fixing assembly.
2) Remove the fixing web; then, remove the 2 screws [1] and the oil pan [2], and detach the fixing harness cover [3].



F02-909-05

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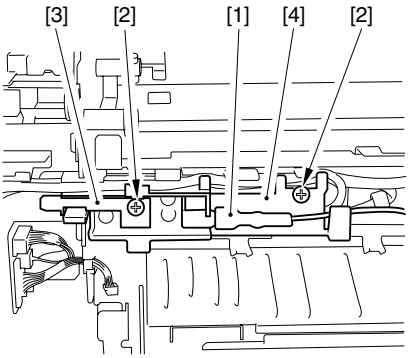
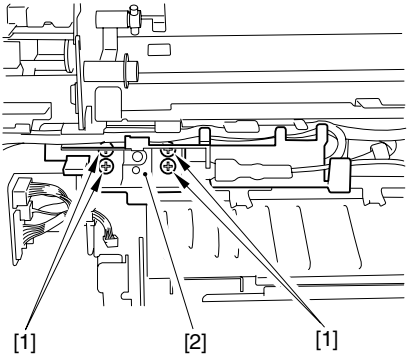
3) Remove the faston [1], and remove the 2 screws [2]; then, detach the electrode assembly [3] and the thermal switch holder [4].



F02-909-06

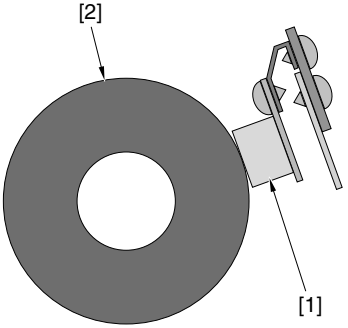
4) Remove the 4 screws [1], and detach the thermal switch unit [2].



F02-909-07

d. Mounting the Thermal Switch Unit

- When mounting the thermal switch unit [1], be sure that it is in contact with the fixing roller [2] as shown.
- The thermal switch must be replaced as the thermal switch unit.
- Do not use again the thermal switch wolse contact point become open.

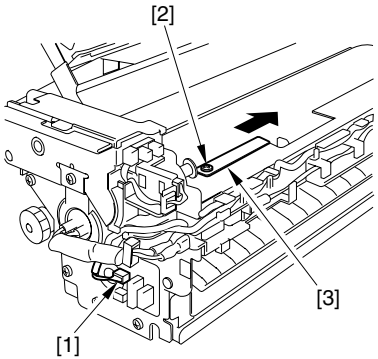


F02-909-08

e. Removing the Main Thermistor

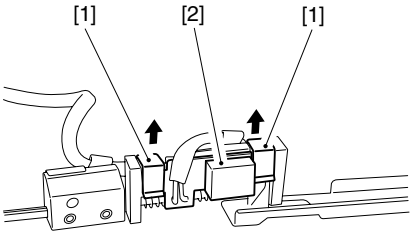
1) Remove the fixing assembly.
2) Remove the fixing web and the oil pan.
3) Remove the fixing harness cover.
4) Disconnect the connector [1] of the thermistor. Remove the screw [2], and shift the thermistor assembly [3] to the rear to detach.

When shifting the thermistor assembly to the rear, take care not to damage the fixing roller with the thermistor.



F02-909-09

5) Remove the 2 thermistor retaining springs [1], and detach the main thermistor [2].



F02-909-10

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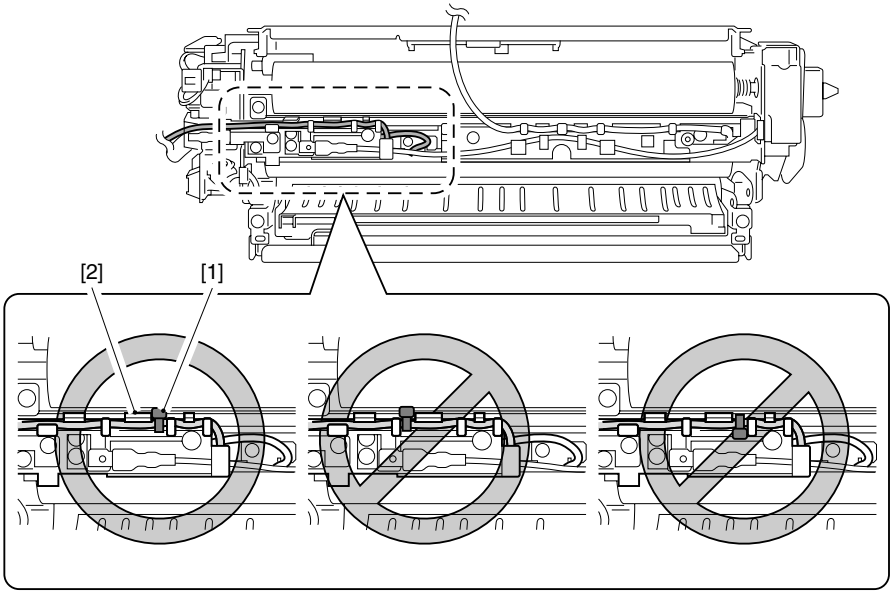
f. Mounting the Main Thermistor

When mounting the main thermistor to the fixing assembly, be sure that the tie-wrap [1] is as shown.

The tie-wrap serves as a stopper by butting against the claw [2].

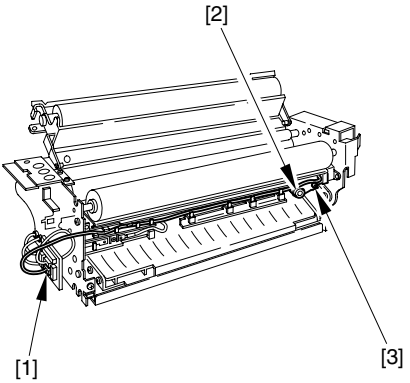
Check also to be sure that the main thermistor and the fixing roller are not away from each other.



F02-909-11

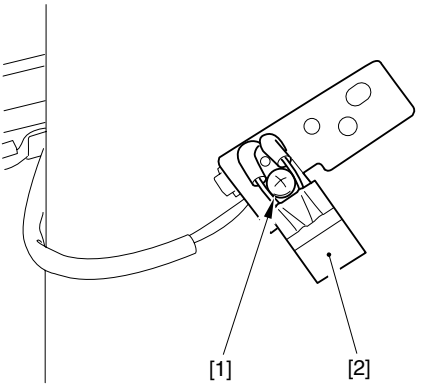
g. Removing the Sub Thermistor

1) Slide out the fixing assembly.
2) Remove the fixing web and the oil pan.
3) Remove the fixing harness cover.
4) Disconnect the connector [1] and remove the screw [2]; then, detach the sub thermistor assembly [3].



F02-909-12

5) Remove the screw [1], and detach the sub thermistor [2].



F02-909-13

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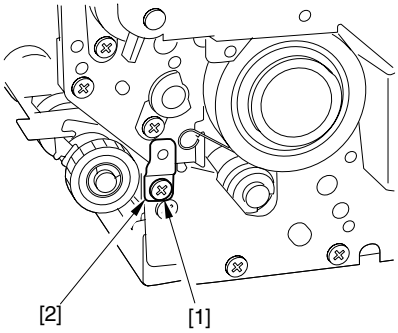
9.9.2 Fixing Roller Assembly

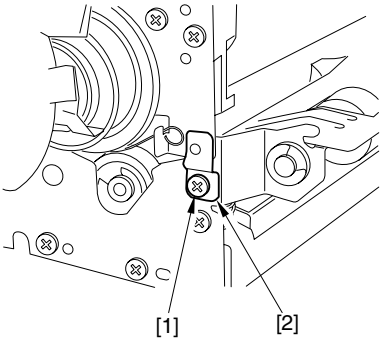
a. Removing the Fixing Upper Roller

1) Remove the fixing assembly.
2) Remove the fixing web, and clean the oil pan.
3) Remove the 2 fixing heaters.
4) Remove the screw [1], and detach the pressure support plate [2] at the front.



F02-909-14

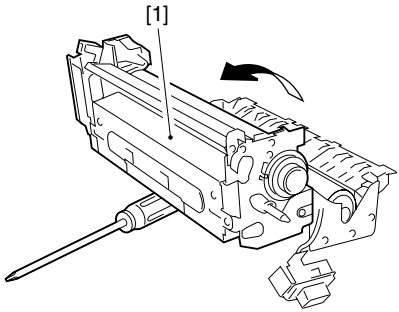
5) Remove the screw [1], and detach the pressure support plate [2] at the rear.



F02-909-15

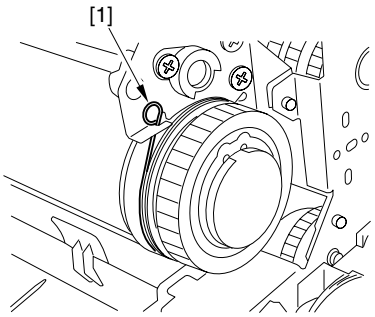
6) Open the fixing upper unit [1].

When opened, the fixing upper unit becomes unstable. Be sure to use a screwdriver as shown to support it.

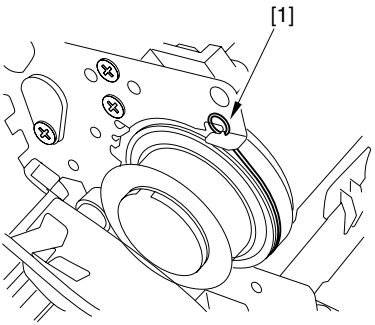


F02-909-16

7) Remove the stopper [1] from the front and the rear.

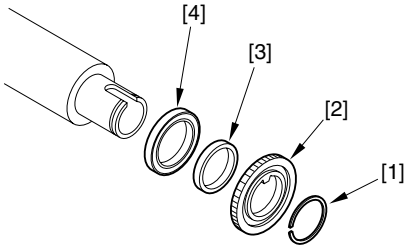


F02-909-17



F02-909-18

8) While paying attention to the thermal switch and the thermistor, remove the upper roller assembly.
9) Remove the C-ring [1] at the front, and remove the gear [2], bushing [3], and bearing [4].



F02-909-19

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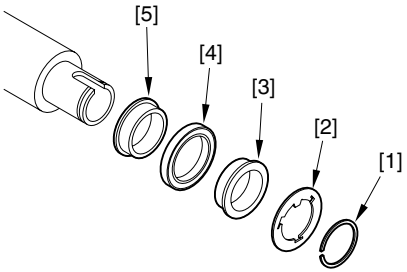
10) Remove the C-ring [1] at the rear, and remove the electrode plate [2], spacer [3], bearing [4], and bushing [5].

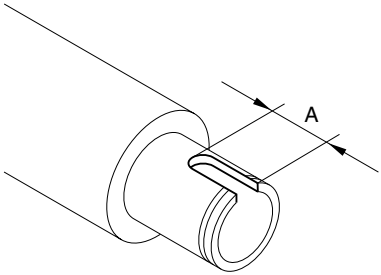


F02-909-20

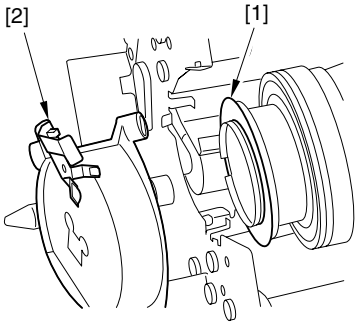
b. Mounting the Fixing Upper Roller

Mount the upper roller by reversing the steps used to remove it.

a. To prevent the surface of the roller from dirt or damage, wrap paper after removing it.
b. Be sure that the longer cut-off A shown in F02-909-21 is toward the rear.
c. When mounting, clean the electrode plate [1] and the electrode terminal [2].



F02-909-21

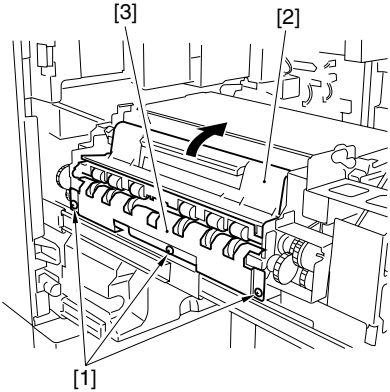


F02-909-22

9.9.3 Delivery Assembly

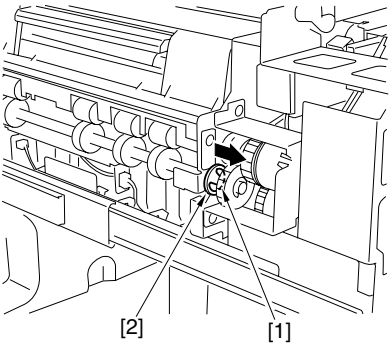
a. Removing the External Delivery Roller

1) Remove the fixing assembly.
2) Remove the 3 screws [1]; then, while opening the upper delivery assembly [2], remove the delivery roller guide [3].



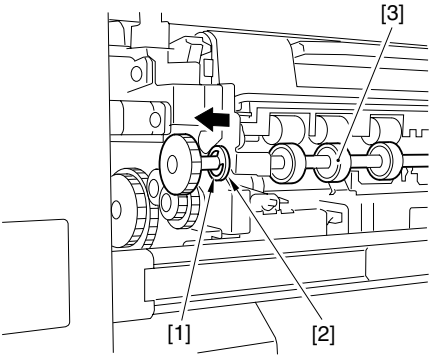
F02-909-23

3) Remove the E-ring [1] at the front, slide the bearing [2] in the direction of the gear.



F02-909-24

4) Remove the E-ring [1], and slide the bearing [2] toward the rear; then, detach the external delivery roller assembly [3].



F02-909-25

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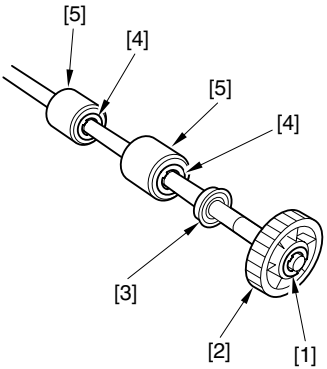
5) Remove the E-ring [1], one-way gear [2], and bearing [3] at the rear of the external roller shaft; then, remove the 2 E-rings [4] and the 2 rollers [5] of each roller.

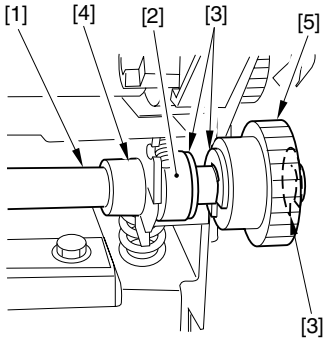


F02-909-26

Take care not to lose the parallel pin used in each roller.

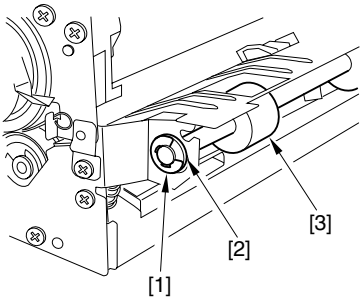
b. Removing the Internal Delivery Roller

1) Remove the fixing assembly.
2) Remove the internal delivery roller [1], bearing [2], 3 E-rings [3], and bushing holder [4]; then, detach the drive gear [5].



F02-909-27

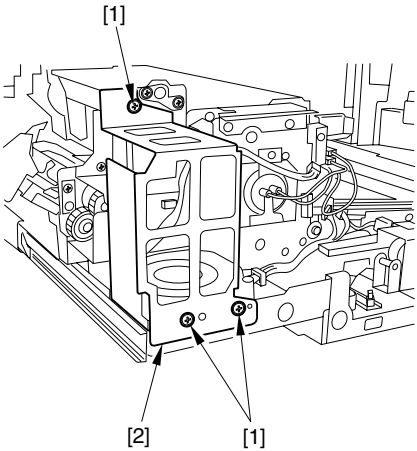
3) Remove the E-ring [1] and the bushing [2] at the rear of the shaft; then, detach the internal delivery roller [3].



F02-909-28

c. Removing the Delivery Speed Switching Clutch

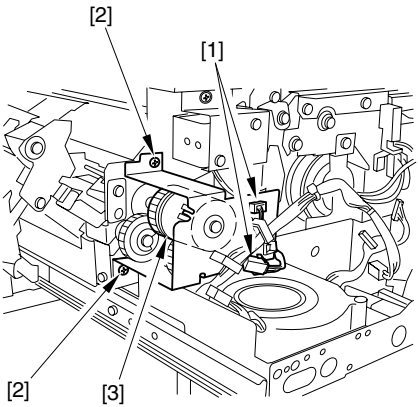
1) Slide out the fixing/feeder unit.
2) Remove the fixing motor.
3) Remove the 3 screws [1], and detach the fixing front support base [2].



F02-909-29

4) Disconnect the 2 connectors [1], and remove the 2 screws [2]; then, detach the delivery speed switching clutch [3].

When detaching the delivery speed switching clutch, take care not to lose the bearings on both ends of the clutch shaft and the washer at the rear.



F02-909-30

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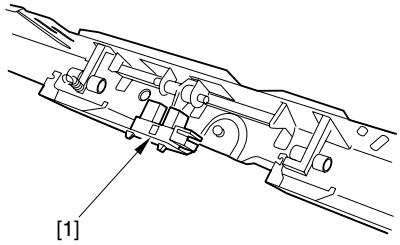
9.9.4 Paper Sensors

a. Removing the Claw Jam Sensor

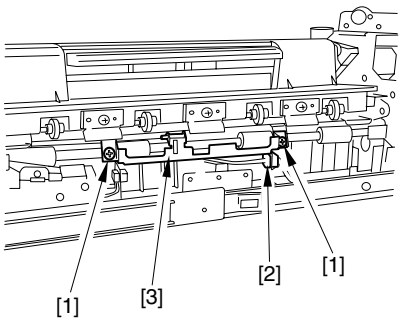
1) Remove the fixing assembly.
2) Remove the 2 screws, and detach the lower separation claw assembly.
3) Detach the claw jam sensor [1] from the right side of the lower delivery assembly.



F02-909-31

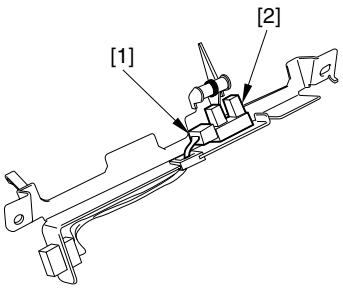
b. Remove the External Delivery Sensor

1) Remove the external delivery roller.
2) Remove the 2 screws [1], and disconnect the connector [2]; then, detach the external sensor assembly [3].



F02-909-32

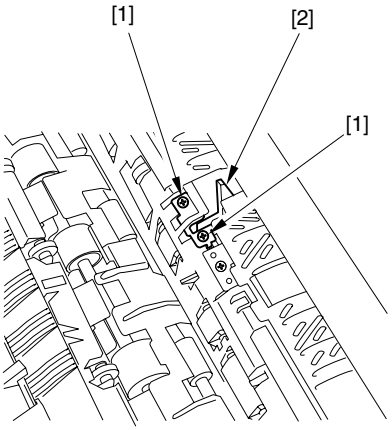
3) Disconnect the connector [1], and detach the external delivery sensor [2].



F02-909-33

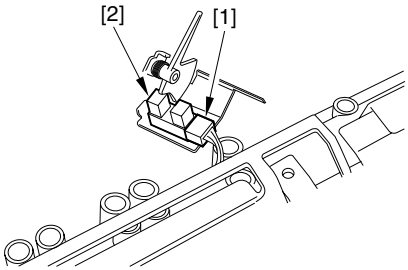
c. Removing the Internal Delivery Sensor

1) Remove the fixing assembly.
2) Open the upper delivery assembly, and remove the 2 screws [1]; then, detach the internal delivery sensor assembly [2].



F02-909-34

3) Disconnect the connector [1], and detach the internal delivery sensor [2].



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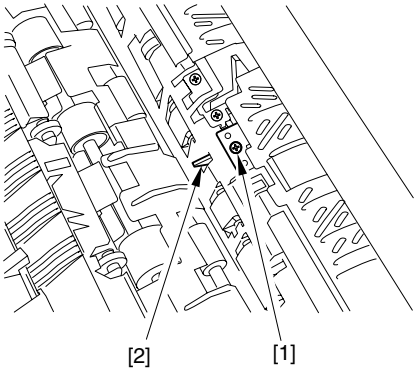
d. Removing the Reversal Sensor

1) Remove the fixing assembly from the copier.
2) Open the upper delivery assembly, and remove the screw [1]; then, remove the reversal sensor assembly [2].



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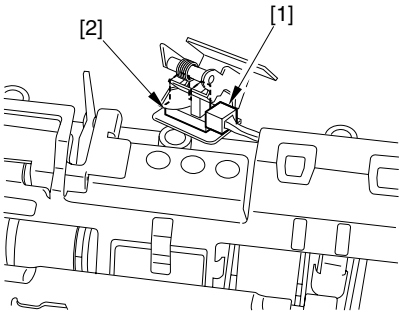
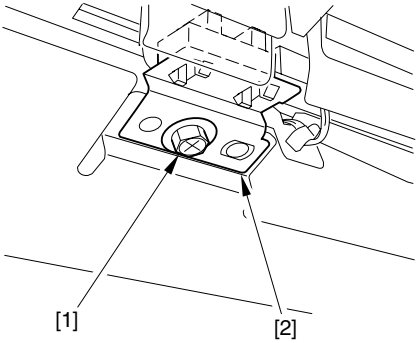
3) Disconnect the connector [1], and detach the reversal sensor [2].



F02-909-37

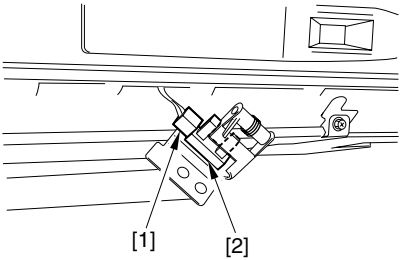
e. Remove the Fixing/Feeder Unit Outlet Sensor

1) Slide out the fixing/feed unit.
2) Remove the screw [1] from the bottom face of the fixing/feeder unit; then, detach the fixing/feed outlet sensor [2].



F02-909-38

3) Disconnect the connector [1], and detach the fixing/feed outlet sensor [2].



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10 Externals/Auxiliary Controls

10.1 Changes Made to the Externals/Auxiliary Controls

Unit/location	Change to GP605	Purpose	Reference
Fan	Developing fan	To cool the developing unit	10.2 Fans
	System fan	To cool the inside of the system box	10.2 Fans
	Delivery adhesion-proofing fan	To cool paper being delivered	10.2 Fans
	Scanner motor cooling fan (iR8500 only)	To cool the scanner motor	10.2 Fans
Externals	Right cover (lower)	To enable connection of another reader unit	
	Left upper cover	To enable connection of another reader unit	
	Face plate	To accommodate the change to the left cover	
	Left upper cover support plate (rear)	To enable mounting of the left paper cover	
	Left upper cover support plate (middle)	To enable mounting of the left upper cover	
	System cover	To increase serviceability related to the main controller PCB	
	Addition of a gasket to the rear upper cover	To limit noise	
Cassette	Change to the appearance of the cassette	To provide consistency in design	

T02-1001-01

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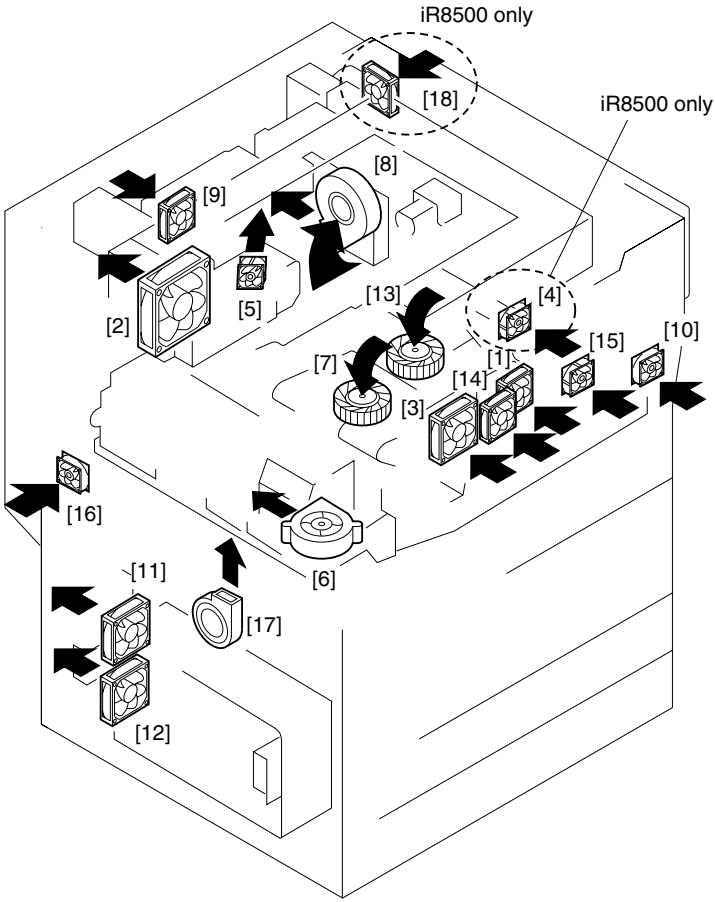
10.2 Fans

F02-1002-01 shows the arrangement of the machine's fans and the directions of current. T02-1002-01 shows the names and the functions of the fans:

The following fans are newly used:
[15] Development fan (FM15)
[16] System fan (FM16)
[17] Deliver adhesion-proofing fan (FM17)
[18] Scanner motor fan (FM20) (iR8500 only)



F02-1002-01

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Ref.	Notation	Name	Description	E code	Alarm code
[1]	FM1	Primary charging assembly fan	Prevents soiling of the wire in the primary charging assembly	E824	-
[2]	FM2	Fixing heat discharge fan	To discharge heat from around the fixing assembly	E805	-
[3]	FM3	Scanner cooling fan	To cool the laser scanner unit	E121-0001	-
[4]	FM4	Stream reading fan (iR8500 only)	To cool the copyboard glass in stream reading mode	-	330010
[5]	FM5	Laser driver cooling fan	To cool the laser driver PCB	E121-0002	-
[6]	FM6	De-curling fan	To cool paper	-	330001
[7]	FM7	Feeding fan	To draw paper to the feed belt	-	330002
[8]	FM8	Drum fan	To draw and cool ozone and stray toner from around the drum	E820	-
[9]	FM9	Inverter cooling fan (iR8500 only)	To cool the control panel inverter	E251	-
[10]	FM10	Pre-transfer charging fan	To discharge ozone from around the pre-transfer charging assembly	E823	-
[11]	FM11	Power supply cooling fan 1	To cool the DC power supply PCB	E804	-
[12]	FM12	Power supply cooling fan 2	To cool the DC power supply PCB	E804	-
[13]	FM13	Separation fan	To facilitate separation of paper from the drum	E830	-
[14]	FM14	Laser scanner cooling fan	To cool the laser scanner motor, to insulate from the fixing assembly	E111	-
[15]	FM15	Developing fan	To cool the developing assembly	-	330006
[16]	FM16	System fan	To cool the PCBs inside the system box	E804-0004	000804-0004
[17]	FM17	Delivery adhesion-proofing fan	To cool paper being delivered	-	330007
[18]	FM20	Scanner motor cooling fan (iR8500 only)	To cool the scanner motor	-	330005

T02-1002-02

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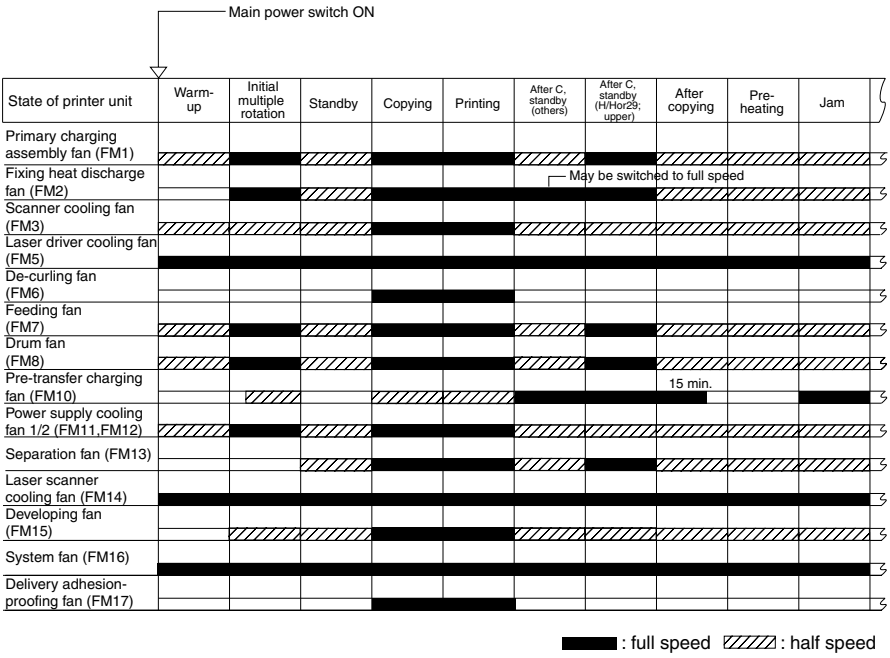
10.3 Sequence of Operations (fans)

Some fans of the machine operate in relation to the state of the printer unit, while some operate in relation to the state of the scanning lamp; the sequence of each is shown in F02-1003-01 and F02-1003-02.

The scanner cooling fan and the power supply cooling fan operate in relation to the states of both the printer unit and the scanning lamp; however, the priority will be on the control mechanism which has the higher speed.

In the event of an error or if the cover is opened, the state of fan operation immediately before the incident will be maintained.

- Fans Operating in Relation to the State of the Printer Unit



F02-1003-01

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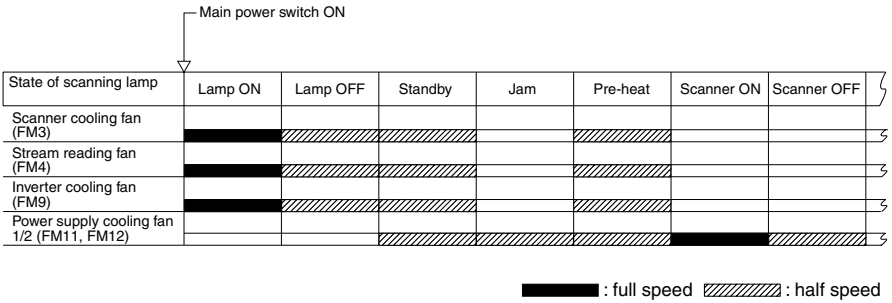
- Fans Operating in Relation to the State of the Scanning Lamp



F02-1003-02

10.4 Disassembly/Assembly

The mechanical characteristics of the machine are as described herein; disassemble/assemble the machine as instructed and with the following in mind:

1. ⚠ Before starting any disassembly/assembly work, turn off the main power switch, and disconnect the power plug.
2. Unless otherwise specifically instructed, assemble the machine by reversing the steps used to disassemble it.
3. Identify the screws by type (length, diameter) and location.
4. To protect against static charge, one of the mounting screws of the rear cover comes with a toothed washer. Be sure not to leave out the washer when assembling the machine.
5. To ensure electrical continuity, the mounting screw for the grounding wire and the varistor comes with a washer. Be sure not to leave out the washer when assembling the machine.
6. As a rule, do not operate the machine with any of its parts removed.
7. When sliding out the duplex feeder unit or the fixing assembly, be sure to turn off the front cover switch or the power switch.

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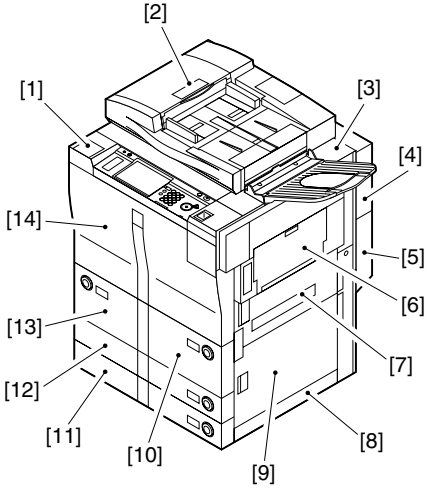
10.4.1 External Covers

a. Names of the Part

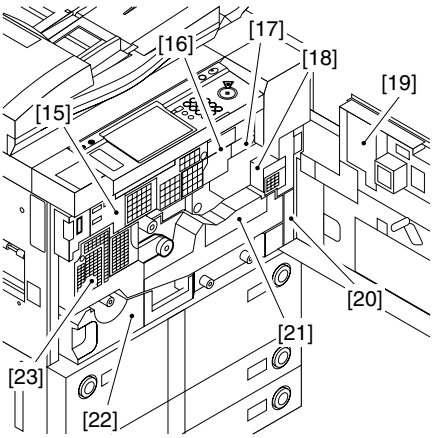
Those covers that can be detached by mere removal of mounting screws are omitted from the discussions (number of screws indicated).

[1] Card Reader Case (See 10.4.2.a./b.)
[2] ADF
[3] Upper right cover (See 10.4.1.i./j.)
[4] Right rear cover
[5] Waste toner cover (1 screw)
[6] Manual feed tray unit (See 8.5.1.a.)
[7] Upper vertical path cover (See 10.4.1.f.)
[8] Right lower cover
[9] Lower vertical path cover
[10] Right deck
[11] Cassette 4
[12] Cassette 3
[13] Left deck
[14] Front cover (See 10.4.1.b.)



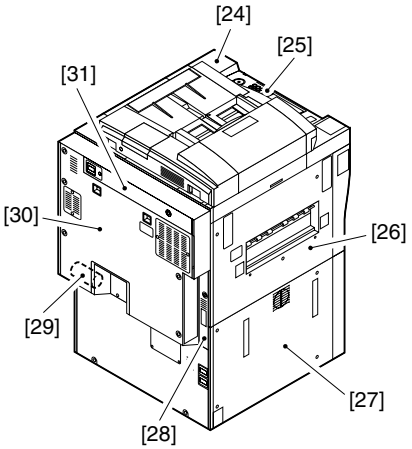
F02-1004-01-a

[15] Inside upper cover (See 10.4.1.c.)
[16] Primary assembly cover (1 screw)
[17] Process unit cover (4 screws)
[18] Pre-transfer charging assembly cover (1 screw)
[19] Compartment cover
[20] Inside right lower cover (2 screws; 1 screw used in common with front cover tape)
[21] Transfer/saparation charging assembly cover (1 screw)
[22] Duplex unit cover (4 screws, 3 knobs)
[23] Fixing/feeder unit cover (See 10.4.1.d.)



F02-1004-01-b

[24] Toner cartridge cover (2 screws)
[25] Control panel (See 10.4.2.a./b.)
[26] Left upper cover (9 screws; after removing left lower cover)
[27] Left lower cover (4 screws)
[28] System connector cover (2 screws)
[29] Drum protective sheet (after removing waste toner cover)
[30] Rear cover (See 10.4.1.e.)
[31] Rear upper cover (2 screws) (iR8500 only)



F02-1004-02-a

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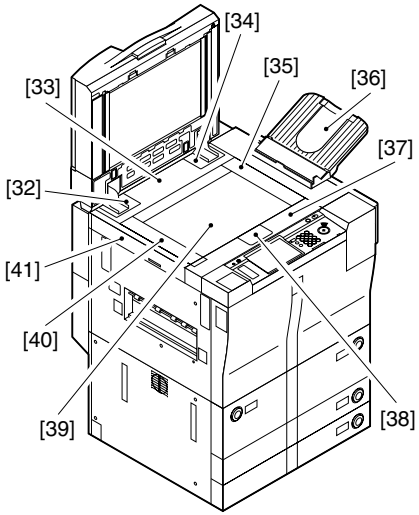
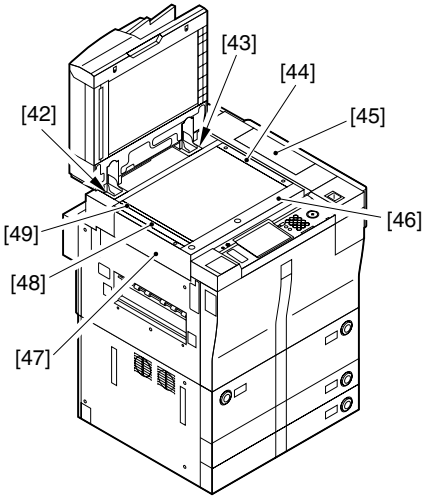
• iR8500
[32] Left pocket plate (See 10.4.1.g.)
[33] Upper rear cover (See 10.4.1.g.)
[34] Right pocket plate (3 screws)
[35] Right glass retainer (2 screws)
[36] Original delivery tray (2 screws)
[37] Upper front cover (See 10.4.2.a.)
[38] Scanning lamp cover
[39] Copyboard glass
[40] Left glass retainer (2 screws)
[41] Upper left cover (3 screws)



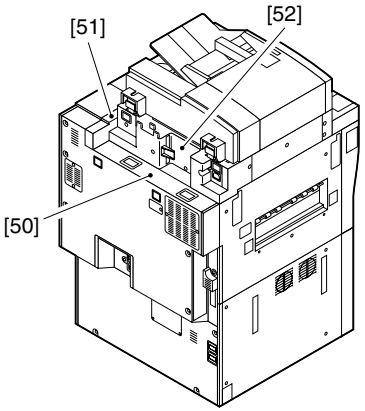
F02-1004-02-b

• iR7200
[42] Left pocket cover (reader rear cover removed; ADF positioning stepped screw, 1 pc.)
[43] Right pocket cover (reader rear cover removed; ADF positioning stepped screw 1 pc.)
[44] Reader right cover (2 screws)
[45] Cartridge upper cover (See 10.4.1.j.)
[46] Reader front cover (2 screws)
[47] Reader left cover (2 screws)
[48] Stream reading glass
[49] Original edge guide (ADF, copyboard glass, reader front cover removed; 2 screws)



F02-1004-02-c

• iR7200
[50] Rear upper cover (4 screws)
[51] Upper right cover (See 10.4.1.j.)
[52] Reader rear cover (See 10.4.1.h.)

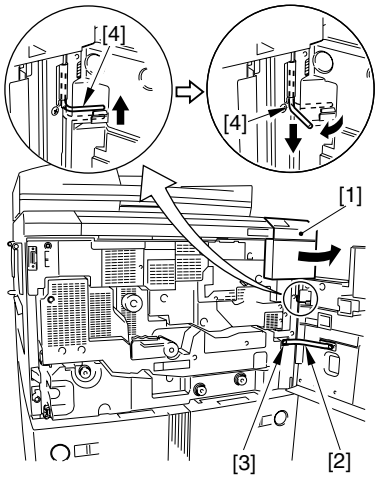


F02-1004-02-d

Remove the covers as necessary when cleaning, checking, or repairing the inside of the machine.

b. Removing the Front Cover

1) Open the toner cartridge cover [1].
2) Open the front cover, and remove the mounting screw [3] for the cover type [2].
3) Push up the hinge pin [4] found on the front cover, an turn it to the front 90° to pull it off downward.
4) Pull off the front cover at an angle.



F02-1004-03

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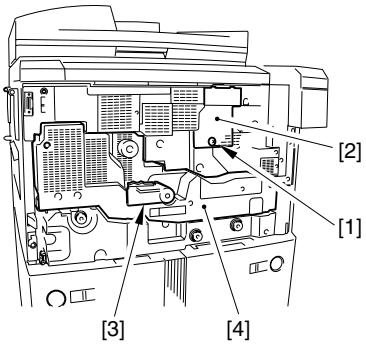
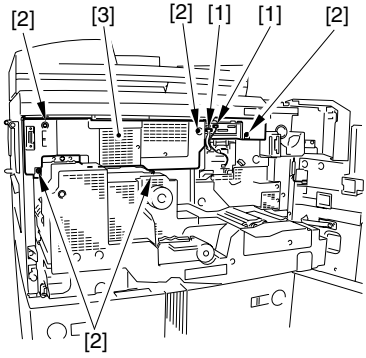
c. Removing the Inside Upper Cover

1) The toner cartridge cover.
2) Open the front cover.
3) Remove the mounting screw [1], and detach the primary charging assembly cover [2].
4) Shift down the fixing/feeding lever [3], and slide out the fixing/feeder unit [4].



F02-1004-04

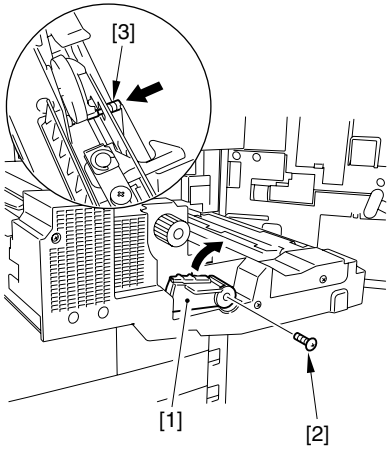
5) Disconnect the 2 connectors [1].
6) Remove the 5 mounting screws [2], and detach the inside upper cover [3].



F02-1004-05

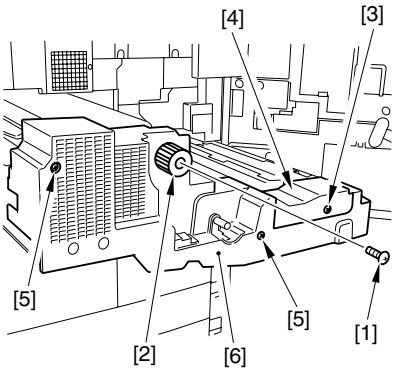
d. Removing the Fixing/Feeder Unit Cover

1) Open the front cover, and shift down the fixing/feeding lever to slide out the fixing/feeding unit.
2) Remove the mounting screw [2] of the releasing lever [1]; then, pushing the releasing lever link [3] found at the rear of the fixing/feeder unit, remove the releasing lever while keeping it shifted up.



F02-1004-06

3) Remove the mounting screw [1], and detach the fixing knob [2].
4) Remove the mounting screw [3], and detach the transfer separation charging assembly cover [4].
5) Remove the 2 mounting screws [5], and detach the fixing/feeder unit cover [6].



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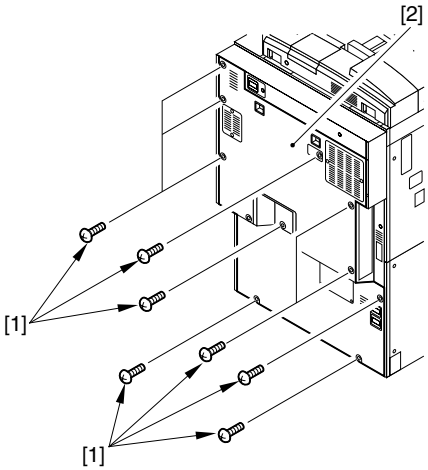
e. Removing the Rear Cover

- iR8500

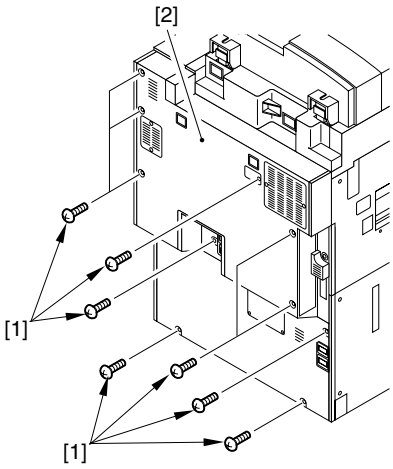
1) Remove the 11 mounting screws [1], and detach the rear cover [2].



F02-1004-08

- iR7200

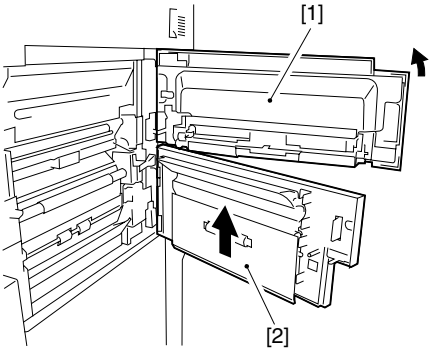
1) Remove the rear upper cover (4 screws).
2) Remove the 10 mounting screws [1], and detach the rear cover [2].



F02-1004-09

f. Removing the Upper Vertical Path Cover

1) Open the Manual feed tray unit.
2) Open the upper vertical path cover [2].
3) Holding the Manual feed tray unit [1] slightly up, pull out the upper vertical path cover [2] upward.

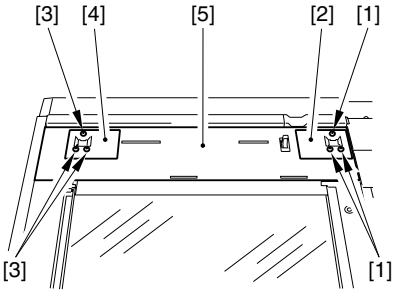


F02-1004-10

g. Removing the Upper Rear Cover (iR8500)

1) Remove the ADF.
2) Remove the 3 screws [1], and detach the right pocket plate [2].
3) Remove the 3 screws [3], and detach the left pocket plate [4].

Mark the position of the screw [3] so that the left pocket plate [4] may be mounted back to its original position.



F02-1004-11

4) Remove the upper rear cover [5].

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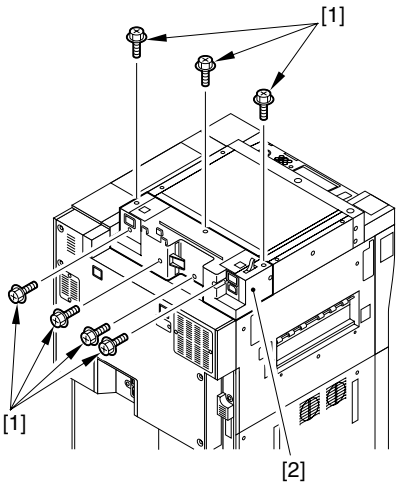
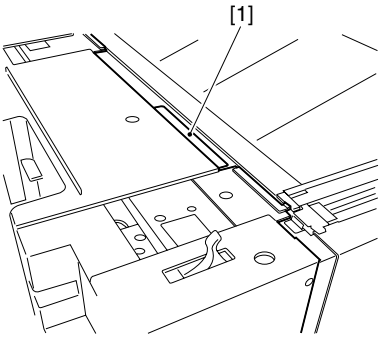
h. Removing the Reader Rear Cover (iR7200)

1) Disconnect all cables connected to the reader unit.
2) Remove the seven mounting screws [1], and detach the reader rear cover [2].



F02-1004-12

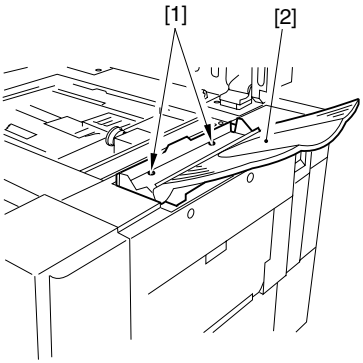
When mounting the reader rear cover, be sure that the sheet attached to it is not bent (Take care so that it is under the copyboard glass).



F02-1004-13

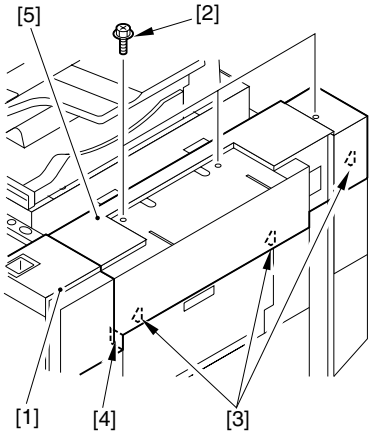
i. Removing the Upper Right Cover (iR8500)

1) Remove the 2 screws [1] and detach the delivery tray unit [2].



F02-1004-14

2) Open the toner cartridge cover [1], and remove the 3 screws [2]; then, detach the upper right cover [5] while paying attention to the 3 claws [3] and the rib [4].



F02-1004-15

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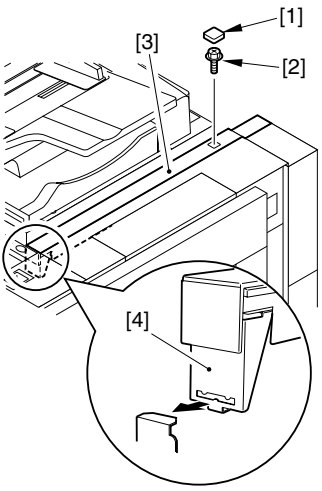
j. Removing the Upper Right Cover (iR7200)

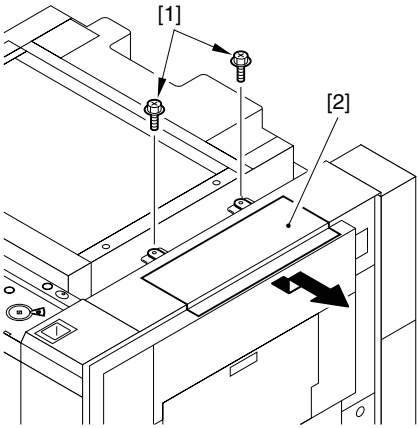
1) Remove the face cap [1] and the screw [2]; then, detach the upper right cover (inside) [3].

When mounting, be sure to insert the front [4] of the upper right cover (inside) first.



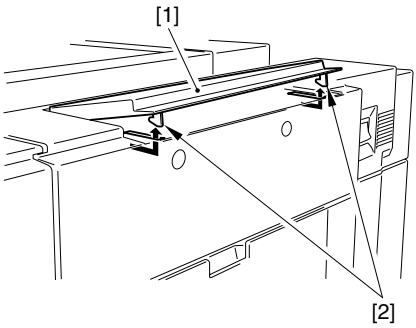
F02-1004-16

2) Remove the 2 screws [1], and detach the cartridge upper cover [2].



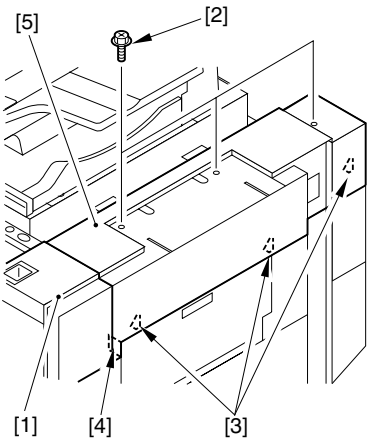
F02-1004-17

A claw [2] is provided to the front of the cartridge upper cover [1]. It is fitted into the machine, requiring care when removing the cover. When mounting, check to make sure that the cartridge upper cover is firmly in contact.



F02-1004-18

3) Open the toner cartridge cover [1], and remove the 3 screws [2]; then, detach the upper right cover [5] while paying attention to the 3 claws [3] and the rib [4].



F02-1004-19

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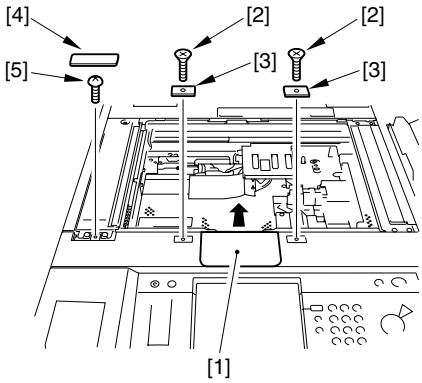
10.4.2 Control Panel

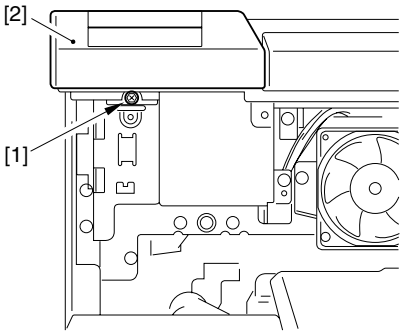
a. Removing the Control Panel (iR8500)

1) Remove the copyboard glass.
2) Remove the scanning lamp cover [1].
3) Remove the flat-head screw [2] (1 pc. each), and detach the 2 magnet catches [3].
4) Remove the small cover [4] for the standard white plate, and remove the screw [5].



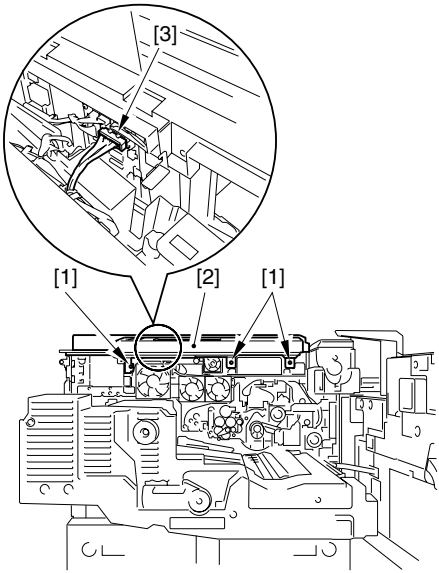
F02-1004-20

5) Remove the inside upper cover (See 10.4.1.i.).
6) Remove the 1 screw [1], and detach the left upper cover (small) [2].



F02-1004-21

7) Remove the 3 screws [1].
8) Turn over the control panel [2] to the front, and disconnect the connector [3]; then, remove the control panel [2].



F02-1004-22

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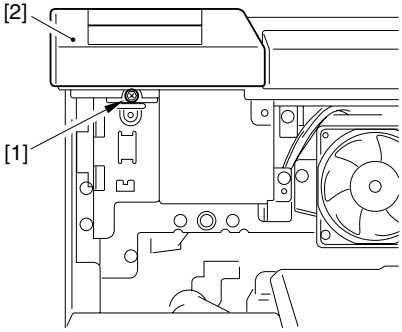
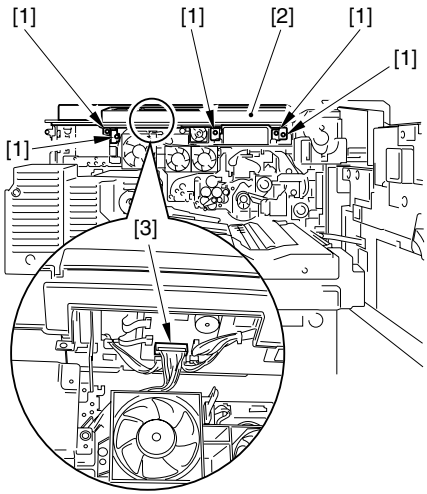
b. Removing the Control Panel Unit (iR7200)

1) Remove the inside upper cover (See 10.4.1.j.).
2) Remove the screw [1], and detach the left upper cover (small) [2].



F02-1004-23

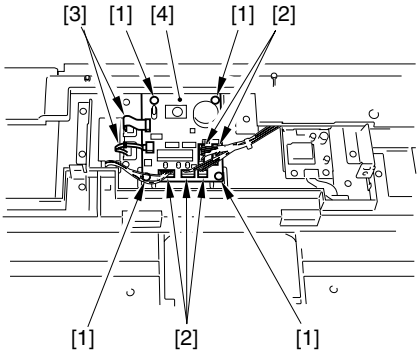
3) Remove the 5 screws [1].
4) Turn over the control panel [2] to the front, and disconnect he connector [3]; then, remove the control panel [2].



F02-1004-24

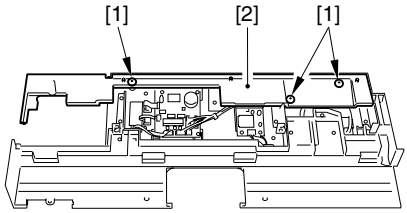
c. Removing the Control Panel Controller (CPU) PCB and the Control Panel Inverter PCB

1) Remove the 4 mounting screws [1], disconnect the 5 connectors [2], and disconnect the 2 flat cables [3]; then, detach the control panel controller (CPU) PCB [4].



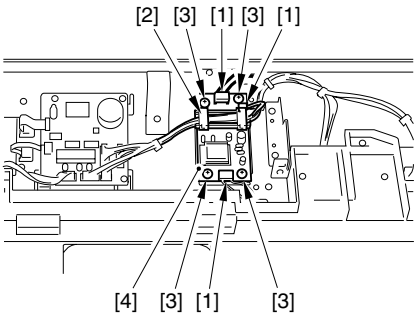
F02-1004-25

2) Remove the 3 screws, and detach the control panel lower cover [2].



F02-1004-26

3) Disconnect the 3 connectors [1], and free the harness from the harness guide [2].
4) Remove the 4 screws [3], and detach the control panel inverter PCB [4].



F02-1004-27

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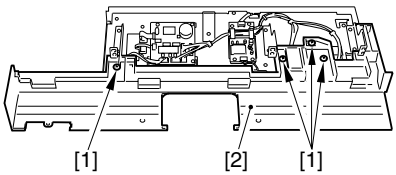
d. Removing the Control Panel PCB and the LCD Panel

1) Remove the control panel lower cover.

- Removing the Control Panel Case (iR8500)

2) Remove heater 4 screws [1], and detach the control panel case [2].



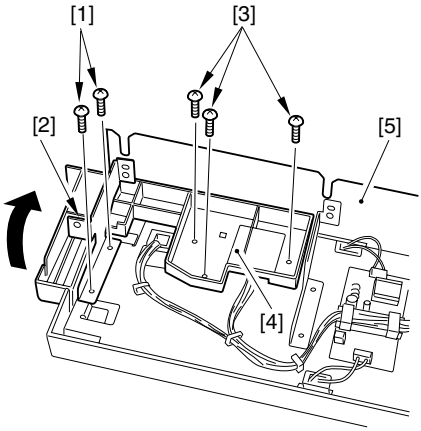
F02-1004-28

- Removing the Control Panel Case (iR7200)

2) Remove the 2 screws [1], and detach the control panel bracket (right) [2].

3) Remove the 3 screws [3], and lift the front of the control panel case [4].

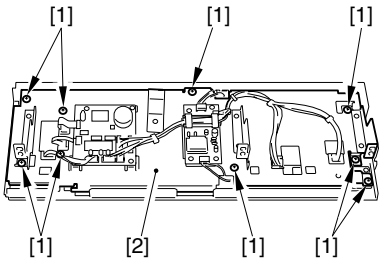
A sheet [5] is attached to the control panel case; take care not to detach or bend the sheet.



F02-1004-29

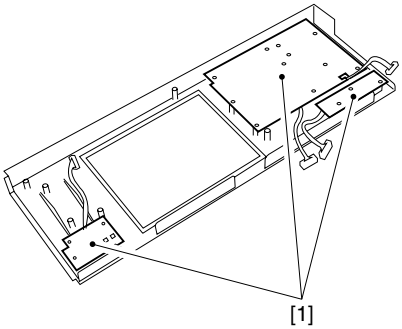
4) Remove the control panel. CPU PCB and the control panel inverter PCB.

5) Free the harness from the wire saddle, and remove the 9 screws [1]; then, detach the control panel plate [2].



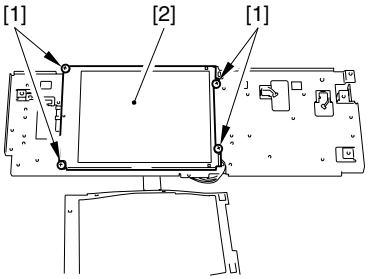
F02-1004-30

6) Remove the mounting screw, and detach the control panel PCB [1].



F02-1004-31

7) Remove the 4 screws [1] on the control panel plate detached in step 4); then, detach the LCD panel [2].



F02-1004-32

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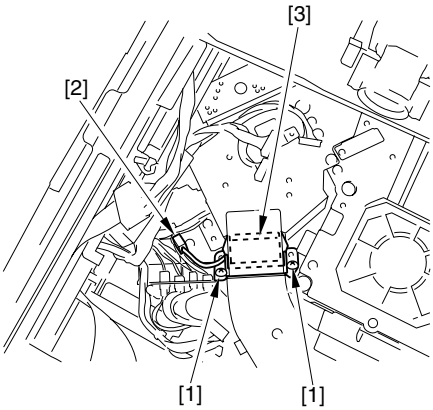
10.4.3 Fan

a. Removing the Laser Cooling Fan 2 (FM5)

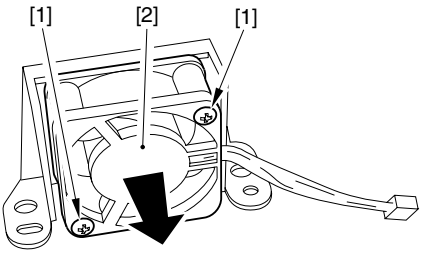
1) Remove the reader controller PCB (See 2.9.3.e.) or slide the reader unit (See 6.3.1.a.).
2) Remove the 2 screws [1], and disconnect the connector; then, detach the laser driver cooling fan [3] together with the mounting base.



F02-1004-33

3) Remove the 2 screws [1], and detach the laser driver cooling fan [2].

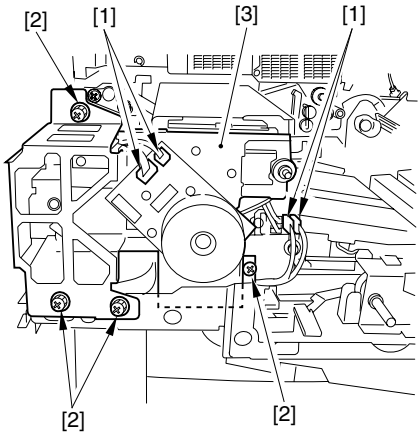
When mounting the fan, be sure that the direction of air current is as indicated by the arrow.



F02-1004-34

b. Removing the Curl-Reducing Fan (FM6)

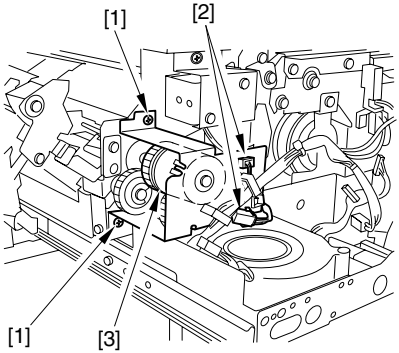
1) Remove the fixing/feeding unit cover (See 10.4.1.d.).
2) Disconnect the 4 connectors [1], and remove other 4 screws [2]; then, detach the fixing motor base [3].



F02-1004-35

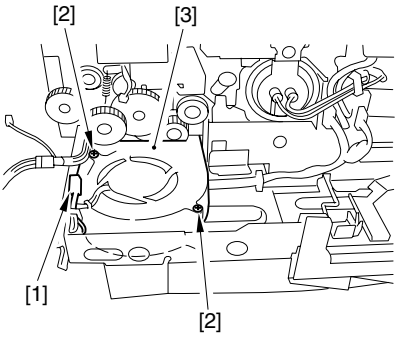
3) Remove the 2 screws [1], and disconnect the 2 connectors [2]; then, detach the delivery speed switching clutch [3].

When removing the delivery speed switching clutch, take care not to lose the bearings and the washers (rear only) on both ends of the clutch shaft.



F02-1004-36

4) Disconnect the connector [1], and remove the 2 screws [2]; them, detach the curl-reducing fan [3].



F02-1004-37

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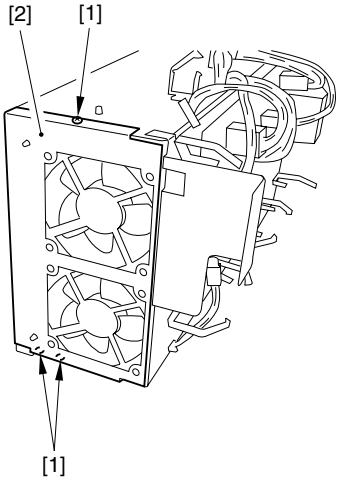
c. Removing the Power Supply Cooling Fan 1 (FM11)

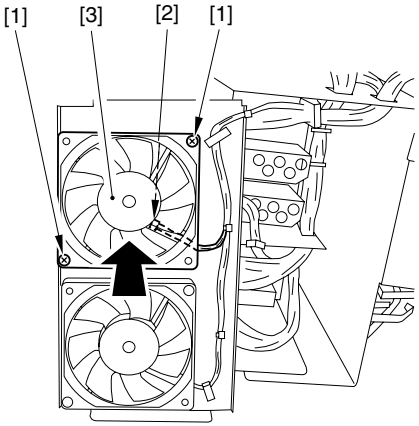
1) Remove the left lower cover (4 screw).
2) Remove the power supply unit (See 10.4.7.a.).
3) Remove the 3 screws [1], and detach the fan mounting base [2].



F02-1004-38

4) Remove the 2 screws [1], and disconnect the connector [2]; then, detach the power supply cooling fan [3].

When mounting the fan, be sure that the direction of air current is as indicated by the arrow.

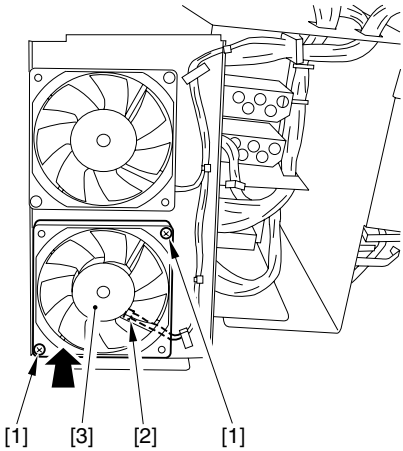


F02-1004-39

d. Removing the Power Supply Cooling Fan 2 (FM12)

1) Remove the fan mounting base (See 10.4.3.c.).
2) Remove the 2 screws [1], and disconnect the connector [2]; then, detach the power supply cooling fan 2 [3].

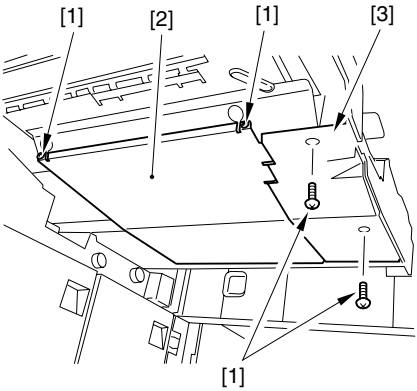
When mounting the fan, be sure that the direction of air current is as indicated by the arrow.



F02-1004-40

e. Removing the Separation Fan (FM13)

1) Slide out the fixing/feeder unit.
2) Remove the 4 screws [1], and detach the fixing/feeding lower cover (1) [2] and the fixing/feeding lower cover (2) [3].



F02-1004-41

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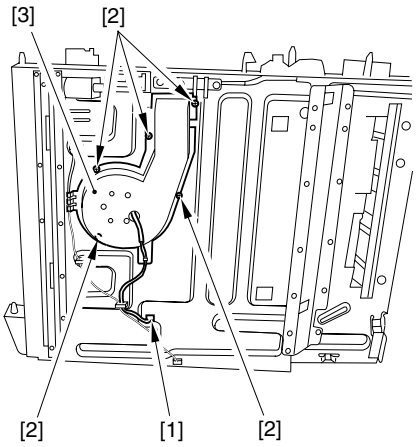
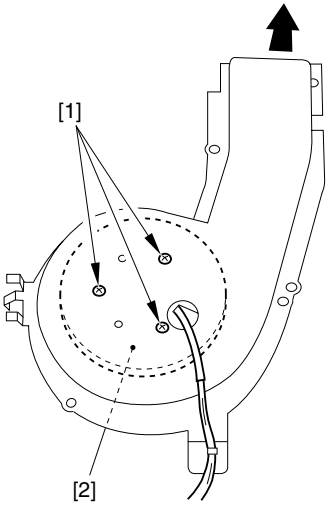
3) Disconnect the connector [1], and remove the five screws [2]; then, detach the separation fan unit [3].



F02-1004-42

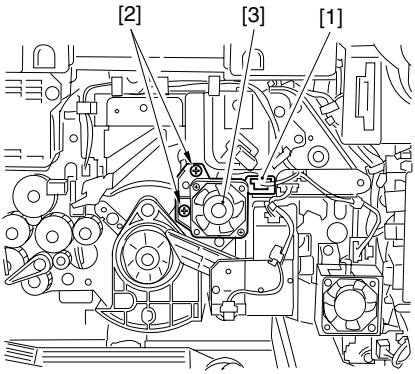
4) Remove the three screws [1], and detach the separation fan [2].



F02-1004-43

f. Removing the Developing Fan (FM15)

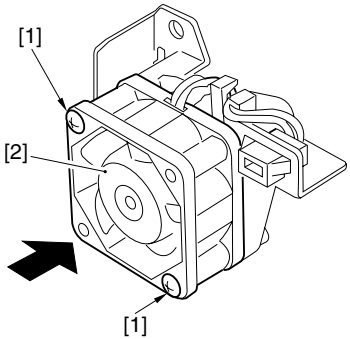
1) Remove the primary charging assembly (See 7.9.1.a.).
2) Disconnect the connector [1], and remove the 2 screws [2]; then, detach the fan unit [3].



F02-1004-44

3) Remove the 2 screws [1], and detach the developing assembly fan [2].

When mounting the fan, be sure that the direction of air current is as indicated by the arrow.



F02-1004-45

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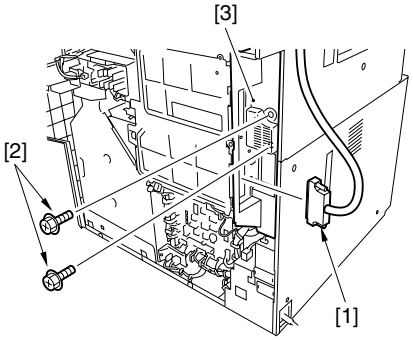
g. Removing the System Fan (FM16)

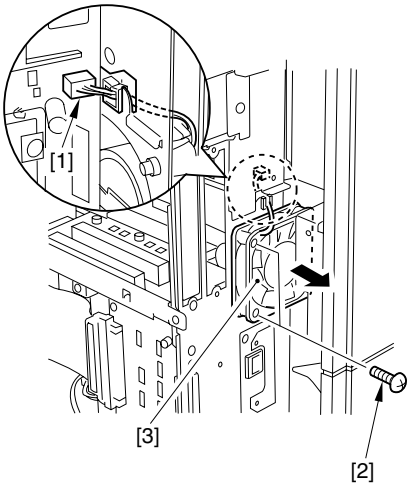
1) Remove the rear cover (See 10.4.1.e.).
2) Disconnect the connector [1].
3) Remove the 2 screws [2], and detach the system connector cover [3].



F02-1004-46

4) Remove the main controller box cover.
5) Disconnect the connector [1], and remove the 2 screws [2]; then, detach the system fan [3].

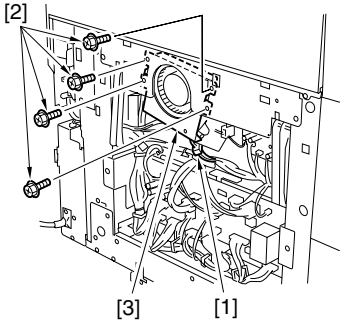
When mounting the fan, be sure that the direction of air current is as indicated by the arrow.



F02-1004-47

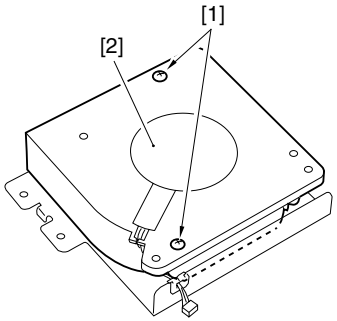
h. Removing the Delivery Anti-Adhesion Fan (FM17)

1) Remove the left lower cover (4 screws).
2) Disconnect the connector [1], and remove the 2 screws [2]; then, detach the fan unit [3].



F02-1004-48

3) Remove the 2 screws [1], and detach the fan [2].



F02-1004-49

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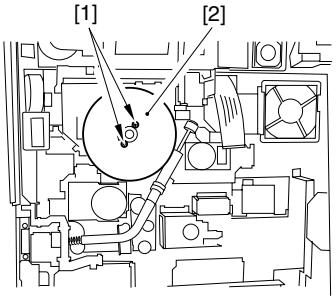
10.4.4 Drive Assembly

a. Removing the Drive Assembly

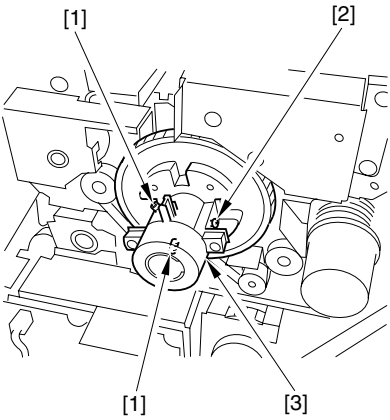
1) Remove the HV-DC PCB (See 10.4.7.c.).
2) Remove the 2 screws [1], and detach the flywheel [2].



F02-1004-50

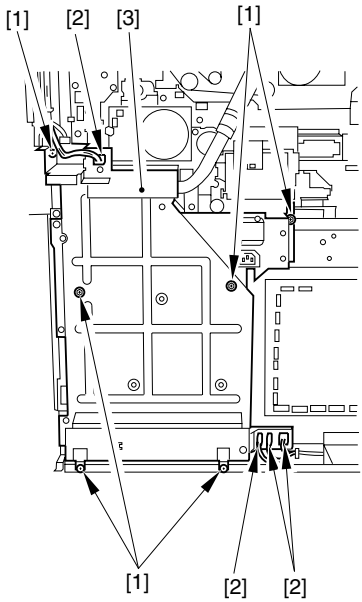
3) Loosen the 2 screws [1] (w/ hex hole), and remove the binding screw [2] (w/ spring); then, detach the gear [3] of the drum shaft.

When removing the screw from the drum shaft gear, be sure to pay attention to the direction of gear rotation, i.e., turn it counterclockwise.



F02-1004-51

4) Remove the water toner case; then, remove the 5 screws [1], and disconnect the 4 connectors [2] to detach the waste toner case base [3].



F02-1004-52

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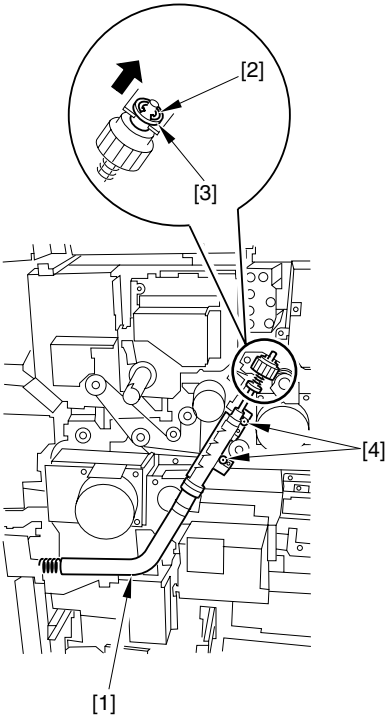
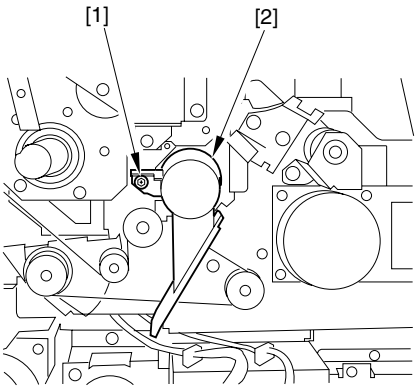
5) Remove the E-ring [2] at the tip of the waste toner pipe [1], and shift the bushing [3] up to remove the 2 screws [4]; then, detach the waste toner pipe [1].



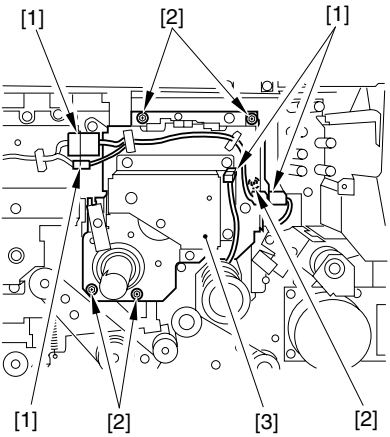
F02-1004-53

6) Remove the screw [1], and detach the drum cleaner pipe cover [2].



F02-1004-54

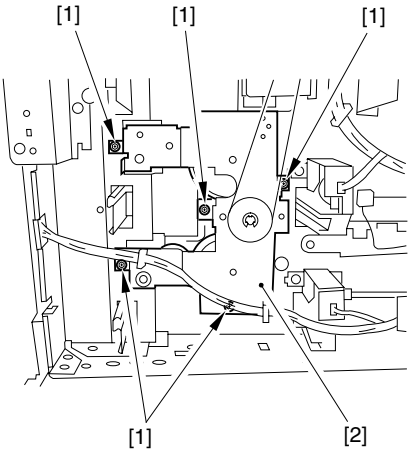
7) Disconnect the 4 connectors [1], and remove the 5 screws [2]; then, detach the drum drive assembly [3].



F02-1004-55

b. Removing the Cassette Pickup Drive Assembly

1) Remove the waste toner case base.
2) Remove the cassette pickup assembly (upper, lower).
3) Remove the 5 screws [1], and detach the cassette pickup drive assembly [2].



F02-1004-56

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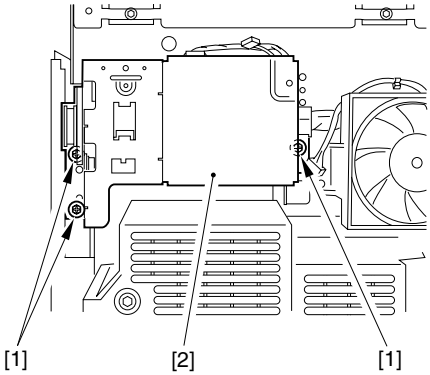
10.4.5 Switches

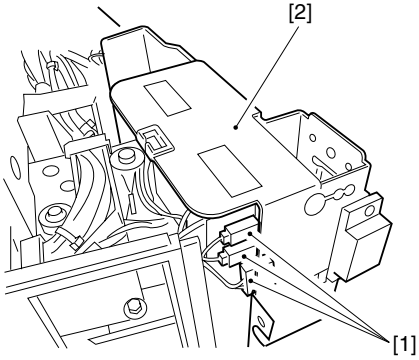
a. Removing the Front Cover Switch Assembly

1) Remove the control panel unit (See 10.4.2.a.b.).
2) Remove the 3 screws [1], and detach the cover switch assembly [2].



F02-1004-57

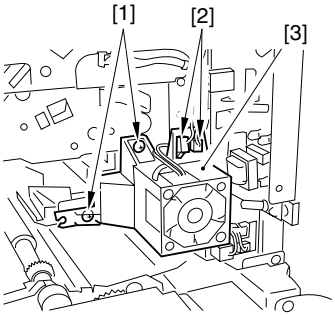
3) Disconnect the 3 connectors [1], and detach the cover switch assembly [2].



F02-1004-58

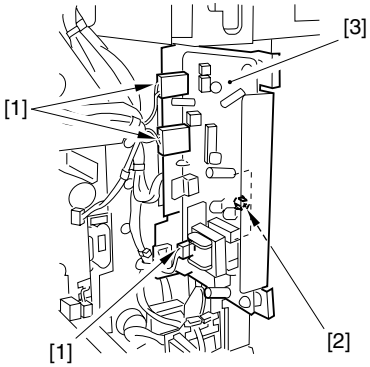
b. Removing the Manual Feed Tray Switch Assembly

1) Remove the process unit cover (4 screws).
2) Remove the 2 screws [1], and disconnect the 2 connectors [2]; then, detach the pre-transfer charging assembly fan [3].



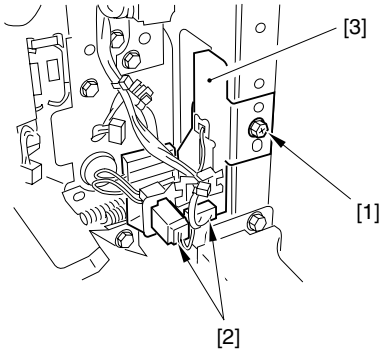
F02-1004-59

3) Disconnect the 3 connectors [1], and remove the screw [2]; then, detach the potential sensor PCB [3].



F02-1004-60

4) Remove the screw [1], and disconnect the 2 connectors [2]; then, detach the manual feed tray switch assembly [3].



F02-1004-61

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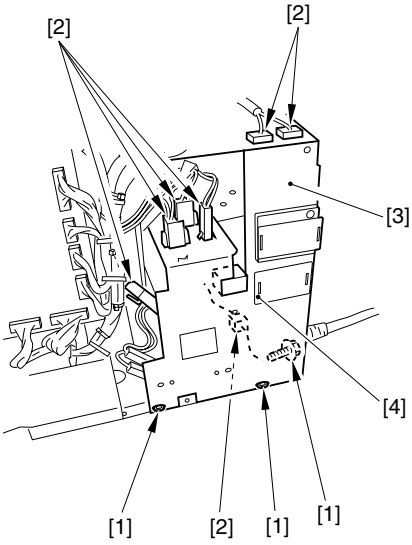
c. Removing the Drum Heater Switch Assembly

1) Remove the rear cover (See 10.4.1.e.).
2) Remove the left lower cover (4 screws).
3) Remove the 3 screws [1], and disconnect the 7 connectors [2]; then, detached power cord base [3]. thereafter, free the fixing claw to detach the drum heat switch [4].



F02-1004-62

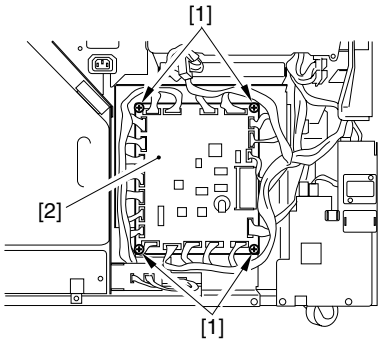
10.4.6 PCBs

For the following, see their appropriate sections:

- Transformer PCB
  (2 “Original Exposure System”)
- Reader controller PCB
  (2 “Original Exposure System”)
- Differential PCB
  (2 “Original Exposure System”)
- Hard disk
  (3 “Image Processing System”)
- Control panel controller (CPU) PCB
  (10.4.2 “Control Panel”)
- Control panel inverter PCB
  (10.4.2 “Control Panel”)
  Control panel PCB
  (10.4.2 “Control Panel”)

a. Removing the DC Controller PCB

1) Remove the rear cover (See 10.4.1.e.).
2) Disconnect all connectors of the PCB, and remove the 4 screws [1]; then, detach the DC controller PCB [2].



F02-1004-63

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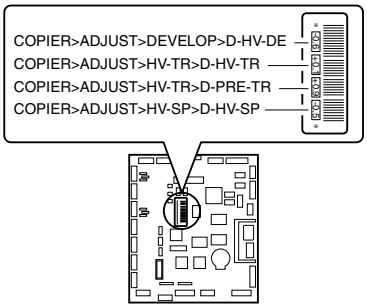
b. When Replacing the DC Controller PCB

1) If possible, print out the user mode/service mode data.
2) Replace the DC controller PCB.
3) Execute the following in service mode to clear the RAM:
   COPIER>FUNCTION>CLEAR>DC-CON.
4) Assemble the machine; then, connect the power plug to the power outlet, and turn on the main power switch.
5) Enter the following indicated on the service label:
   COPIER>ADJUST>LASER (all items)
   COPIER>ADJUST>DEVELOP (all items)
   COPIER>ADJUST>DENS (all items)
   COPIER>ADJUST>BLANK (all items)
   COPIER>ADJUST>V-CONT (all items)
   COPIER>ADJUST>HV-PRI (all items)
   COPIER>ADJUST>HV-TR (all items)
   COPIER>ADJUST>HV-SP (all items)
   COPIER>ADJUST>FEED-ADJ (all items)
   COPIER>ADJUST>CST-ADJ (all items)
   COPIER>ADJUST>EXP-LED (all items)
6) Execute the following in service mode: COPIER>FUNCTION>MISC-P>CL-ADJ (all items)
   COPIER>FUNCTION>SEEN>ADJ (all items)
7) Enter the values (4 types) indicated on the label attached to the new DC controller PCB in service mode.

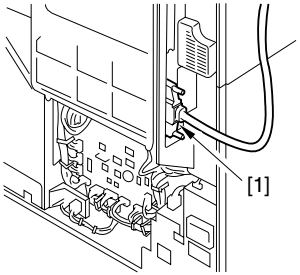


F02-1004-64

8) Turn off and then on the main power switch.

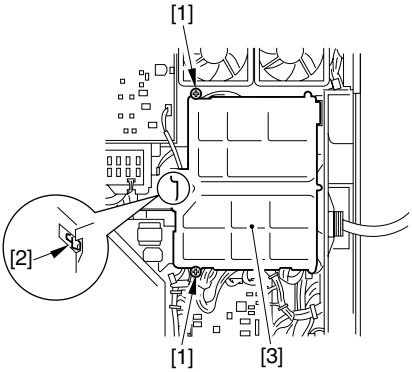
c. Removing the Differential PCB

1) Remove the rear cover (See 10.4.1.e.).
2) Disconnect the reader controller communications cable [1].



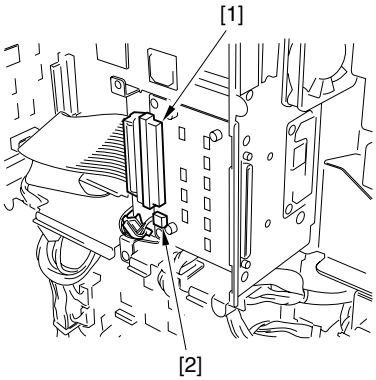
F02-1004-65

3) Remove the 2 screws [1], and detach the left stop fixing [2]; then, detach the main controller box cover [3].



F02-1004-66

4) Disconnect the main controller communications cable [1] and the connector [2].



F02-1004-67

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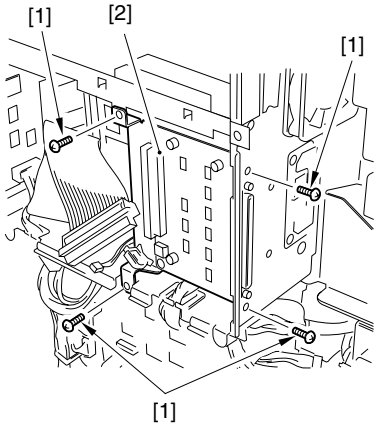
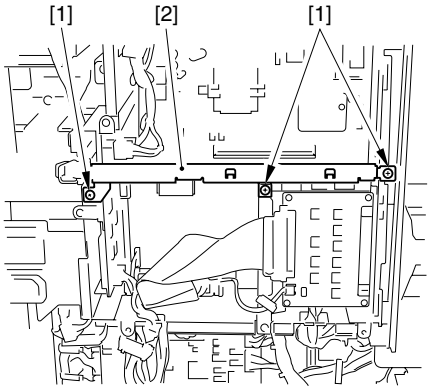
5) Remove the 4 screws [1], and detach the differential PCB [2] together with the mounting base.



F02-1004-68

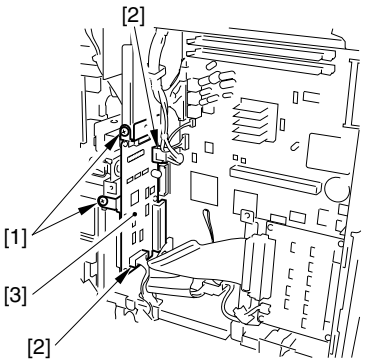
d. Removing the Pixel/Line Conversion PCB

1) Remove the rear cover (See 10.4.1.e.).
2) Remove the main control box cover.
3) Remove the 3 screws [1], and detach the PCB base [2].



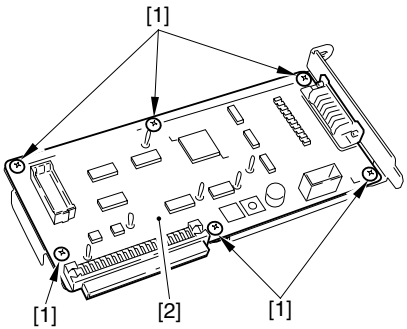
F02-1004-69

4) Remove the 2 screws [1], and disconnect the 2 connectors [2]; then, detach the pixel/line conversion PCB [3] together with the mounting base.



F02-1004-70

5) Remove the 6 screws [1], and detach the pixel/line conversion PCB [2] from the mounting base.



F02-1004-71

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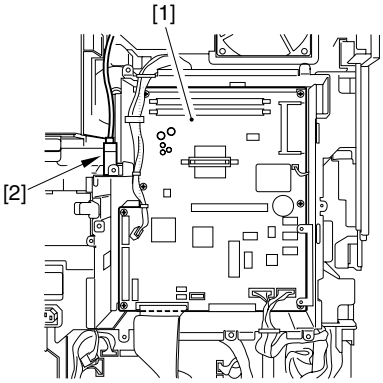
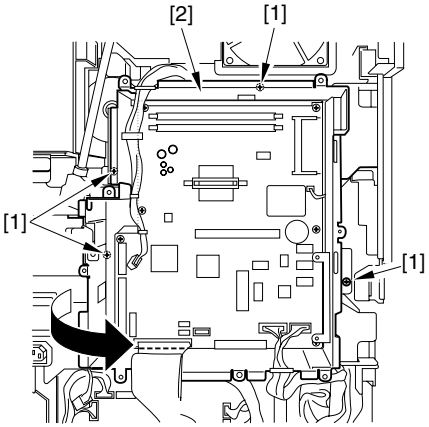
e. Removing the Main Controller PCB

1) Remove the system connector cover.
2) Remove the differential PCB (See 10.4.6.c).
3) Remove the pixel/line conversion PCB (See 10.4.6.d).
4) Disconnect all connectors from the main controller PCB [1].
5) Disconnect the connector [2].



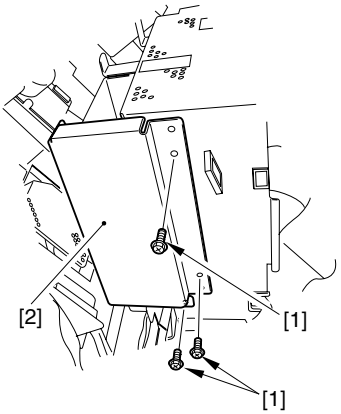
F02-1004-72

6) Remove the 4 screws [1], and open the main controller box [2].



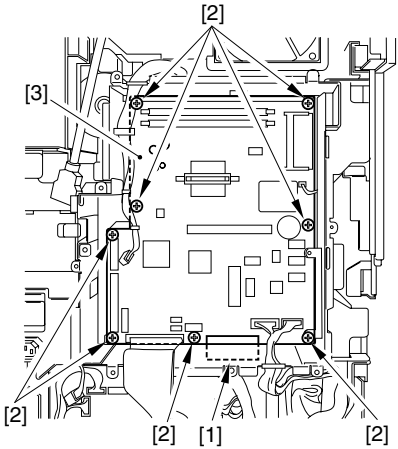
F02-1004-73

7) Remove the 3 screws [1], and detach the lower cover [2] for the main controller box.



F02-1004-74

8) Disconnect the cable [1] from the hard disk; then, remove the 8 screws [2], and detach the main controller PCB [3].



F02-1004-75

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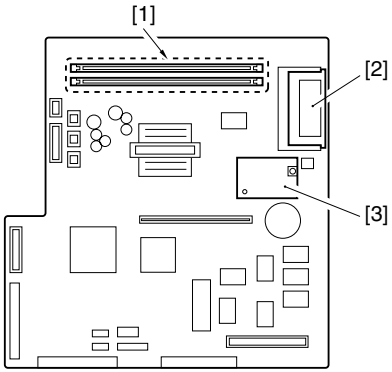
f. When Replacing the Main Controller PCB

1) Replace the main controller PCB.
2) Detach the following from the existing PCB, and mount them to the new PCB:
   • SD-RAM [1]
   • BOOT-ROM [2]
   • counter memory PCB [3]

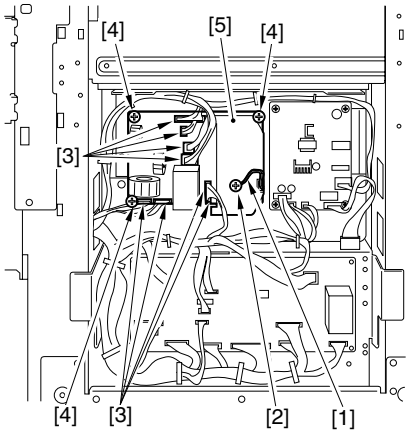


F02-1004-76

3) Assemble the machine; then, connect the power plug to the power outlet, and turn on the main power switch.

g. Removing the AC Driver PCB

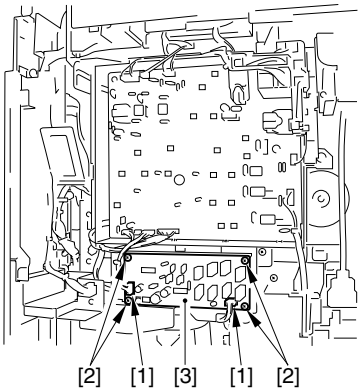
1) Detach delivery anti-adhesion fan mounting base (See 10.4.6.i.).
2) Remove the mounting screw [2] of the grounding wire [1].
3) Disconnect the 8 connectors [3], and remove the 3 screws [4]; then, detach the AC driver PCB [5].



F02-1004-77

h. Removing the HV-AC PCB

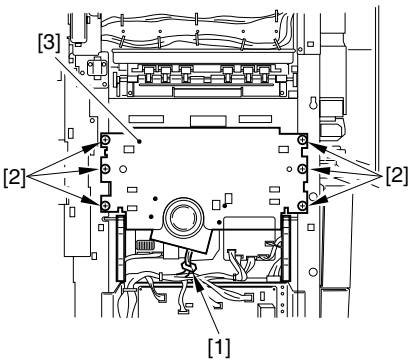
1) Remove the rear cover (See 10.4.1.e.).
2) Disconnect the 2 connectors [1], and remove the 4 screws [2]; then, detach the HV-AC PCB [3].



F02-1004-78

i. Removing the All Night Power Supply PCB

1) Remove the left lower cover (4 screws), and remove the left upper cover (9 screws).
2) Disconnect the connector [1], and remove the 6 screws [2]; then, detach the delivery anti-adhesion fan mounting case [3].



F02-1004-79

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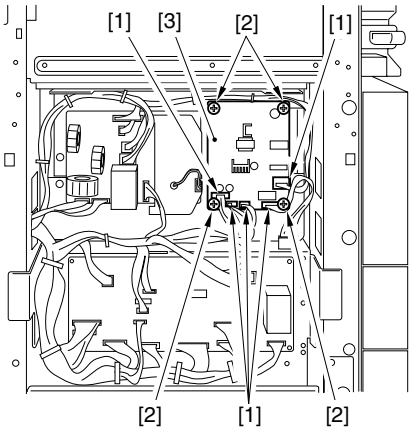
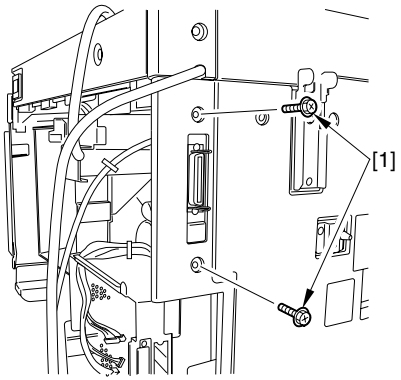
3) Disconnect the 5 connectors [1], and remove the 4 screws [2]; then, detach the all-night power supply PCB [3].



F02-1004-80

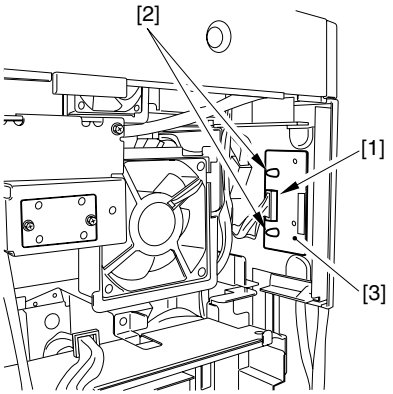
j. Removing the Bi-Centronics PCB

1) Remove the rear cover.
2) Remove the tow screws [1] found on rear side of the left upper cover.



F02-1004-81

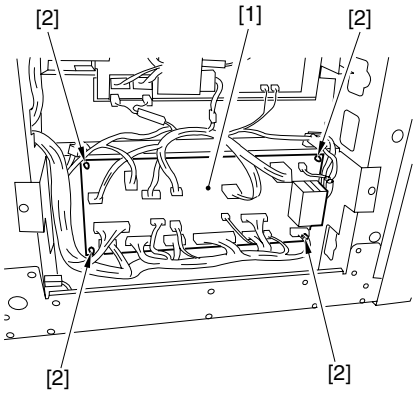
3) Disconnect the connector [1], and remove the 2 rocking support [2] then detach the bi-Centronics PCB [3].



F02-1004-82

k. Removing the Relay PCB

1) Remove the left lower cover (4 screws).
2) Disconnect the connector from the PCB; then, remove the screw [1], and detach the relay PCB [1] from the four PCB holders [2].



F02-1004-83

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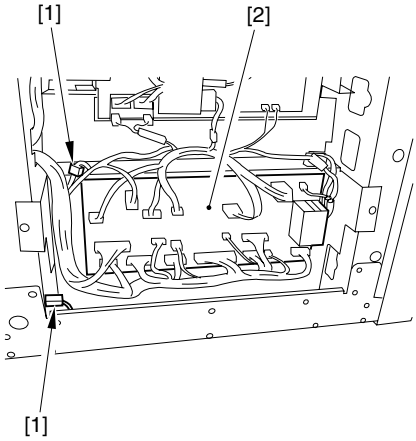
10.4.7 Others

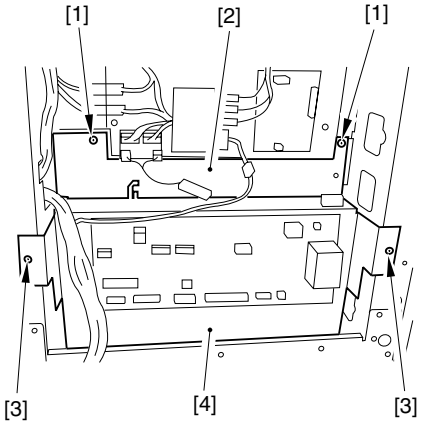
a. Removing the Power Supply Unit

1) Remove the left lower cover (4 screws).
2) Disconnect the 2 connectors [1], and disconnect the connector from the relay PCB [2].



F02-1004-84

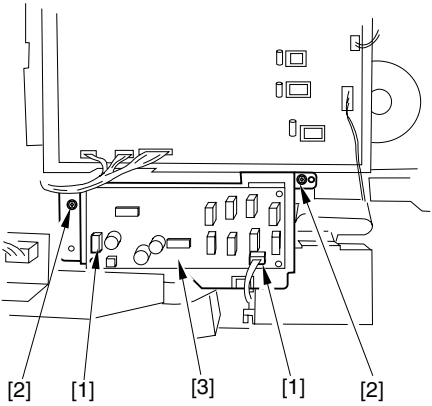
3) Remove the 2 screws [1], and detach the cover plate [2]; them, remove the 2 screws [3], and detach the power supply unit [4].



F02-1004-85

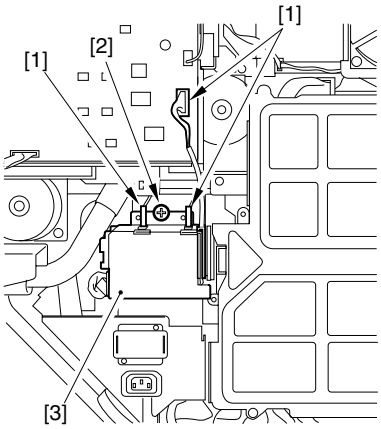
b. Removing the High-Voltage Transformer Assembly (AC)

1) Remove the rear cover (See 10.4.1.e.).
2) Disconnect the 2 connectors [1], and remove the 2 screws [2]; then, detach the HV-AC PCB [3] together with the mounting base.



F02-1004-86

3) Disconnect the 3 connectors [1], and remove the screw [2]; then, detach the high-voltage transformer assembly (AC) [3].



F02-1004-87

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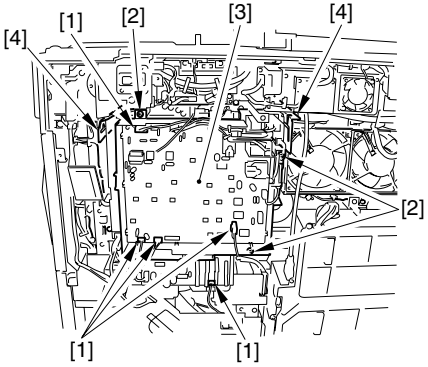
c. Removing the HV-DC PCB

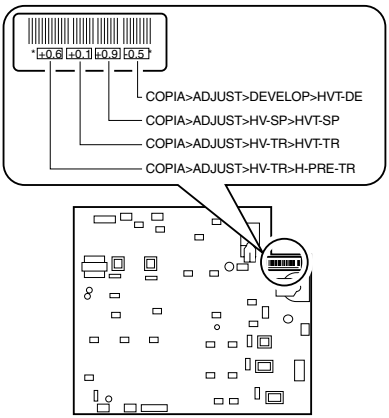
1) Remove the rear cover (See 10.4.1.e.).
2) Disconnect the 5 connectors [1], and remove the 3 screws [2]; then, slide the HV-DC PCB [3] along the left and right rails [4] to detach to the front.
3) Detach the HV-DC PCB [3] from the cut-offs of the rails.



F02-1004-88

d. When Replacing the HV-DC PCB

1) Replace the HV-DC PCB.
2) Check to make sure that the slide switch (SW101) on the PCB is on the UP side.
3) Assemble the machine; then, connect the power plug to the power outlet, and turn on the main power switch.
4) Enter the values (4 types) indicated on the label attached to the new HV-DC PCB in service mode.



F02-1004-89

5) Turn off and then on the main power switch.

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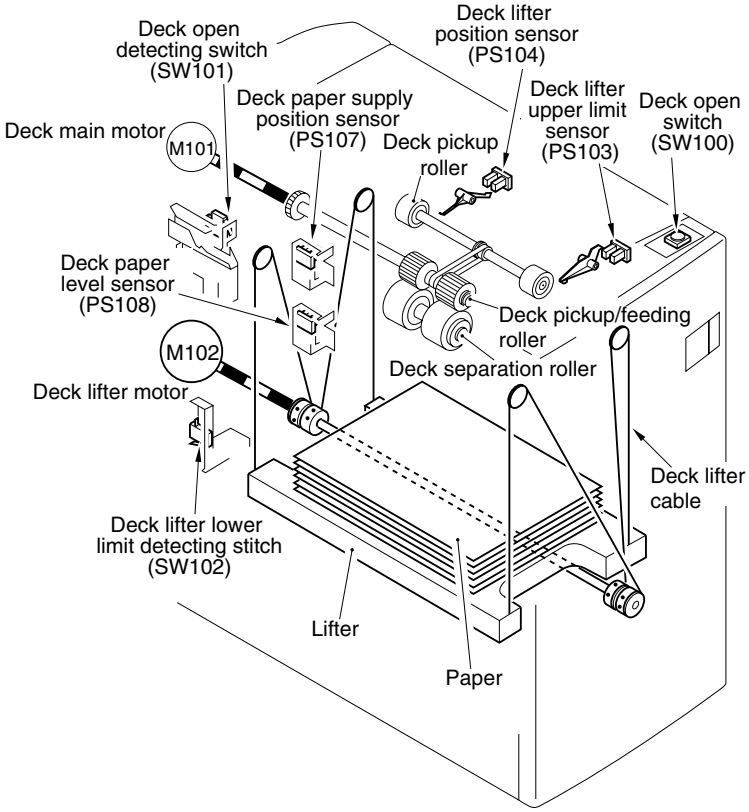
11 Side Paper Deck

11.1 Outline

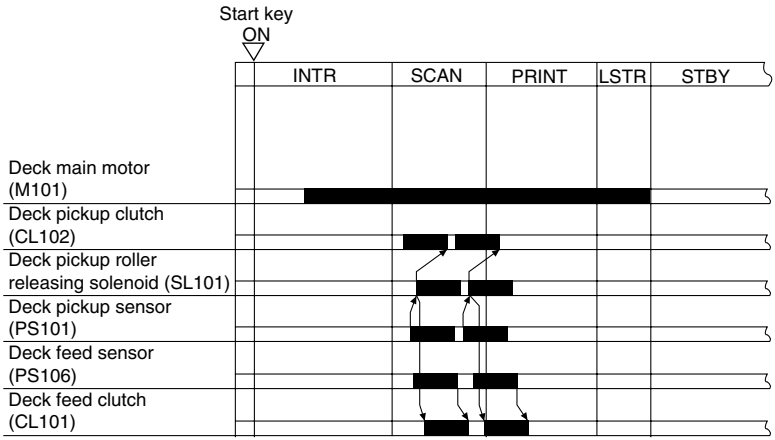
The side paper deck allows placement of 3500 sheets of paper (A4/LTR/B5; 80 g/m^2) at a time, and is designed to feed paper in response to the control signals from the DC controller PCB.

F02-1101-01 shows the basic construction of the side paper deck; F02-1101-02 shows the basic sequence of operations, while F02-1101-03 shows the control mechanism.

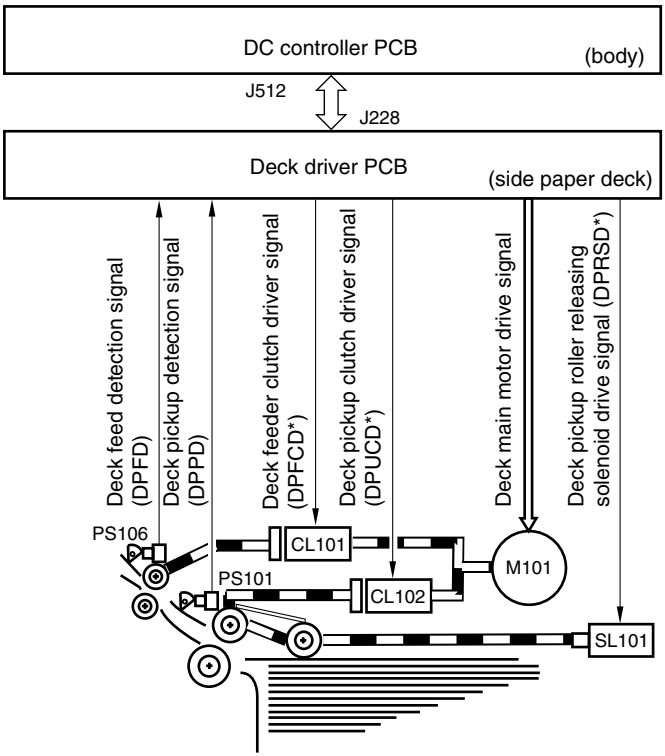
The differences from the GP605 are found in relation to the machine's higher speed of operation, as found in the higher rotation speed of the motor.



F02-1101-01



F02-1101-02



F02-1101-03

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CHAPTER 3

MAIN CONTROLLER

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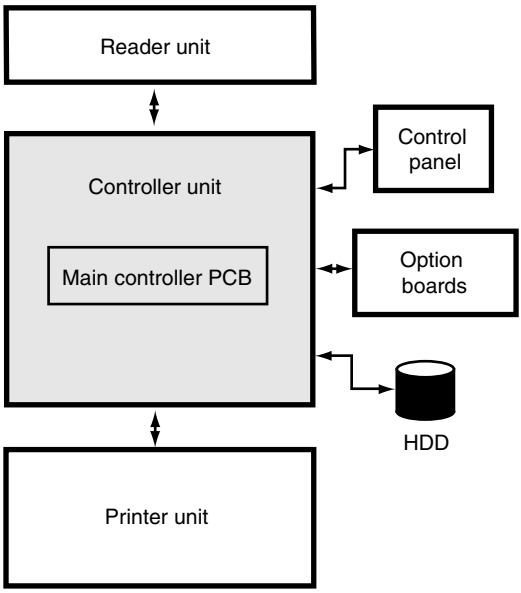
1 Basic Operation

1.1 Functional Construction

The machine may be divided into the following functional blocks, and the controller unit belongs in the shaded block:



F03-101-01

1.2 Outline of the Electrical Circuit

1.2.1 Outline

The major electrical mechanisms of the controller unit are controller by the CPU on the main controller PCB; the following table shows the functions of the CPU, RAM, DIMM, IC, and hard disk located near the CPU:

1.2.2 Main Controller PCB

Name	Description
CPU	• Controls the image data (input) from the reader unit • Controls the image data (output) to the printer unit • Controls the network interface, DMA controller, PCI interface, ROM and RAM interface
RAM	• Stores program data and temporarily stores image data
DIMM-ROM	• Stores the system control program • Stores the boot program

T02-102-01 Functions of the Control Components

1.2.3 Hard Disk Drive

Name	Description
HDD	• Stores the system software • Stores image data for the Box function

T03-102-02

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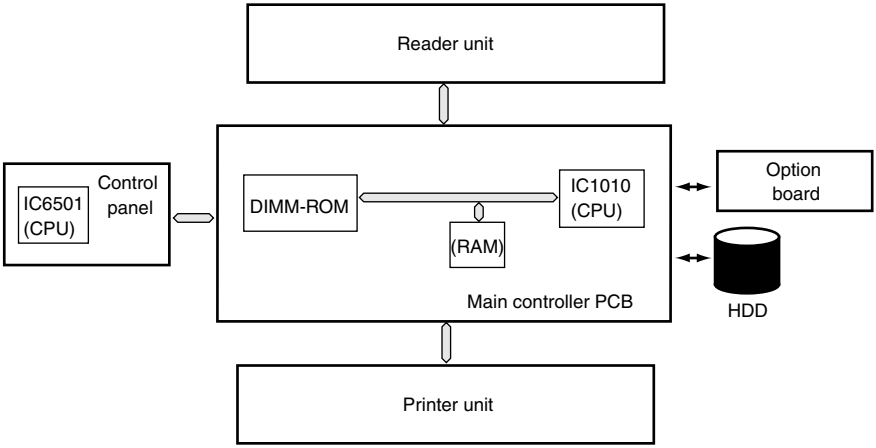


F03-102-01 Arrangement of the Major PCBs

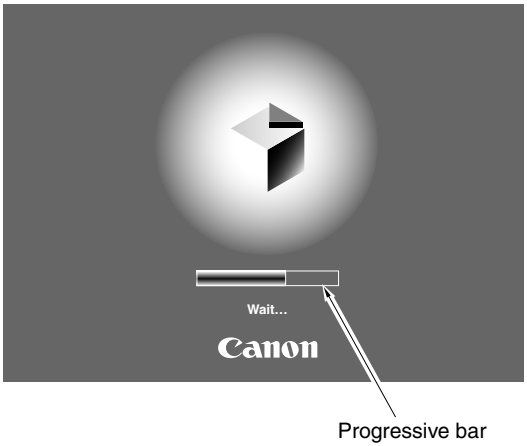
1.3 Start-Up Sequence

1.3.1 Outline

The system software used to control the machine is stored on the hard disk. The CPU on the main controller PCB reads the system software from the hard disk to the SDRAM fitted to the DIMM socket on the main controller PCB (This is why it takes a little time before the control panel becomes ready after the main power switch is turned on).

While the CPU reads the system software from the hard disk to the SDRAM, the control panel shows the following screen, and the progress of executing the start-up sequence is indicated using a progressive bar.

Start-Up Screen



F03-103-01

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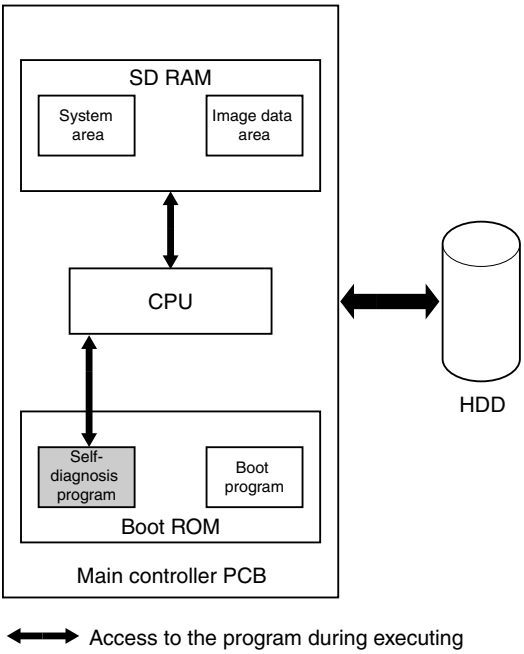
1.3.2 Start-Up Sequence

When the main power switch is turned on, the CPU on the main controller PCB executes the self-diagnosis program stored in the boot ROM.

The program is used to check the condition of the SDARM and the hard disk; if an error is found, the fact will be indicated on the control panel in the form of an error code.



F03-103-02

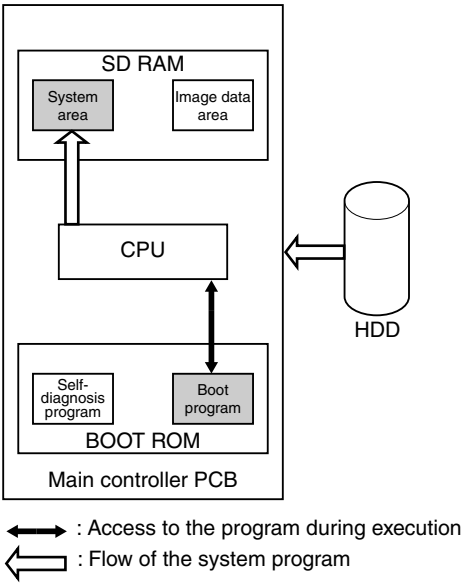
Error

E601-0000, 0001
Indicates an error in the image transfer data.
E602-0001, 0002
Indicates a write/read error.

When the self-diagnosis ends, the boot program that is also stored on the hard disk is started to read the system software from the hard disk to the system area of the SDRAM.

When done, the system software of the SDRAM is started to initialize the parts; thereafter, the control panel shows the normal Operation screen and, at the same time, the Start key LED changes from red to green to indicate that the machine is ready to accept a job.

The machine's system software consists of multiple modules, and those modules that are needed at a time are called into the system area of the SDRAM for execution.



F03-103-03

1.3.3 Composition of the System Software

The machine's system software can broadly be divided into system modules (for control) and language modules (for LCD indication).

Upgrading of the system software calls for upgrading both system and language modules; for details, see 6. "Upgrading" in Chapter 6 "Troubleshooting."

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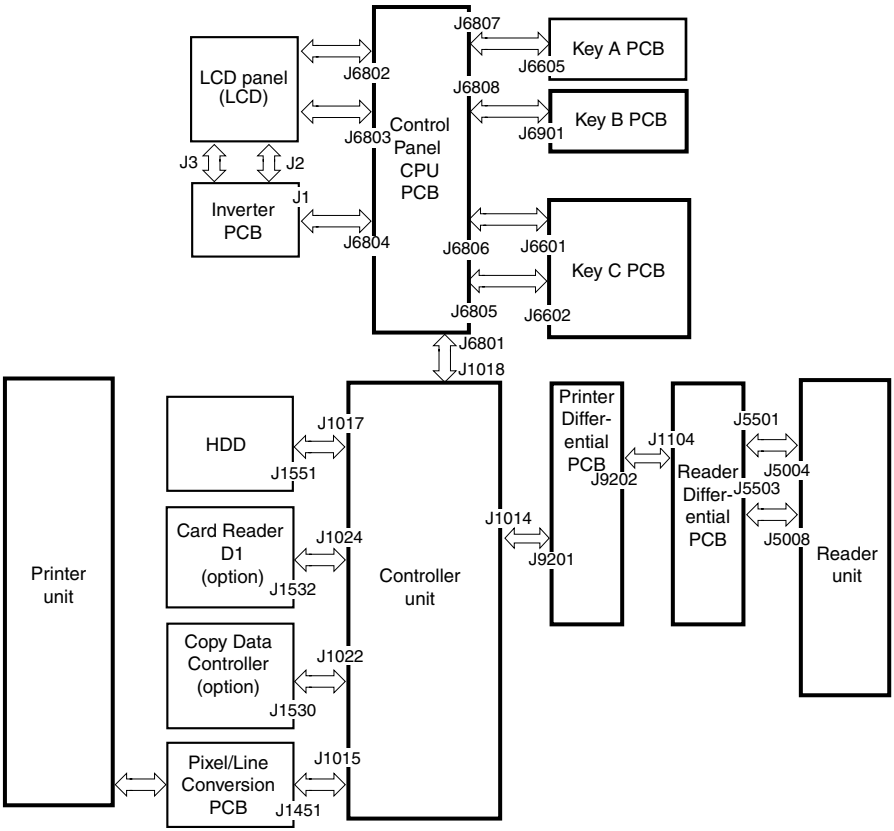
1.4 Inputs to and Outputs from the Major PCBs

1.4.1 Wiring Diagram of the Major PCBs



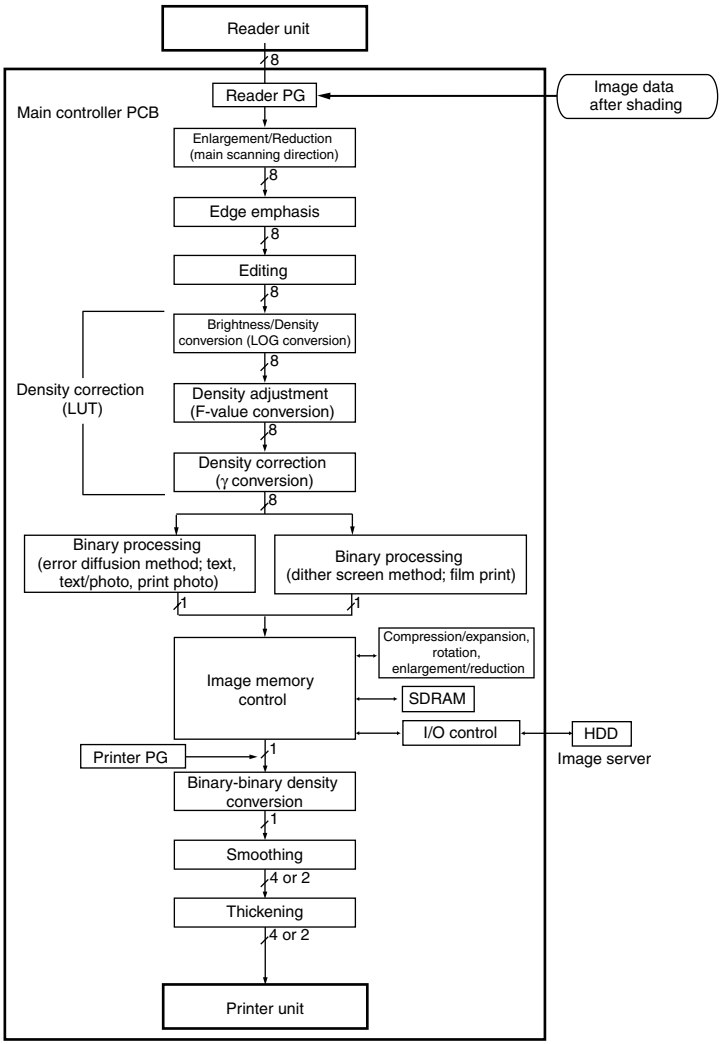
Note: The ⟺ in the diagram indicates major connections, NOT the flow of the signals.

F03-104-01 Wiring Diagram of the Major PCBs

2 Digital image Processing

2.1 Outline

The image memory and the digital image processing mechanisms are controlled by the main controller PCB; the following is a block diagram of the digital image processing mechanisms:



F03-201-01 Block Diagram

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2.2 Input Image Processing

The image data coming from the reader unit is processed a follows:

2.2.1 Image Data from the Reader Unit

The made signal from the reader unit is subjected to shading correction, and is turned into an 8-bit, 256-gradation intensity signal.

The signals arrive from two signal lines: one for even-number pixels and the other for odd-number pixels.

2.2.2 Enlargement/Reduction (main scanning direction)

Image data is processed while it is written to image memory or read from the image memory.

2.2.3 Edge Emphasis

Edge emphasis is executed to reproduce sharp images while suppressing moire in each mode: text, text/photo, print photo, film photo.

2.2.4 Editing

In editing, the image data is processed for the following: blanking/trimming, negative/positive reversal, slant, mirror, fold, repeat.

2.2.5 Density Conversion (LUT)

In this block, the intensity signal is converted into a density signal, and processing is executed so that the best output density curve for each mode may be obtained.

a. LOG Conversion

With reference to the LOG conversion table, the intensity signal based on reflected light is turned into a destiny signal based on deposited toner.

b. Density Adjustment (F value conversion)

The density is adjusted using the F value table selected to suit the setting of the Density key on the control penal. However, this is not executed in memory copy mode.

c. Density Correction (γ conversion)

The density is adjusted using the γ conversion table of each mode: text, text/photo, print photo, film photo.

2.2.6 Binary Processing (error diffusion method; T-BIC)

The error diffusion method (T-BIC) controls the texture by binary processing so that the image data will be converted into data suited for printing; the 8-bit image density signal in each mode (text, text photo, print photo) is converted into a 1-bit image density signal (binary).

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2.2.7 Binary Processing (dither screen method)

The dither screen method controls the texture by binary processing so that the data will be best suited for printing. The 8-bit image density signal for film photo mode is converted into a 1-bit images density signal (binary).

Although the image is expressed in binary, the use of a dither screen method of 12×12 pixels enables its reproduction in 144 gradations.

2.3 Controlling the Image Memory

The image memory is used for binary image data as follows:

2.3.1 Compression/Expansion, Rotation, and Enlargement/Reduction

The image stored in binary is subjected to the following: compression/expansion (for electronic sorting), rotation, and conversion different resolution.

2.3.2 SDRAM

The image data is temporarily stored.

2.3.3 HDD

As opposed to its function as an image server, the HDD is also used for storage of image data for the Box function.

2.4 Processing Output Image

The output image data to be sent to the printer unit is processed as follows:

2.4.1 Smoothing

a. Output of the Read Image

In the case of text or text/photo mode, the input image of 600×600 dpi is subjected to smoothing, thereby expressing it at a resolution of 1200 (equivalent) × 600 dpi.

In smoothing, the image data is compared against several hundred templates of 7×7-pixel pattern matrixes for replacement of the pixel in question.

Notch processing and the like are also executed here as patterns unique to read images.

b. Output of Printer Image (PDL)

The image data is subjected to smoothing suited to PDL, in which a resolution of 300×300 or 600×600 dpi used for each mode is converted into 2400 (equivalent) ×600 dpi.

2.4.2 Thickening (PDL output only)

If selected by the printer driver, thickening processing is executed to enhance the reproduction of fine lines.

The PDL output image is processed so that each horizontal line is given additional 1/2 pixels (1200 dpi) in up/down direction and each vertical line is given 1/2 pixels (1200 dpi) in left/right direction.

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2.4.3 Binary-Binary Density Conversion (read image output only)

This is used as an auxiliary means of density adjustment during copying operation.

3 Soft Counter

The machine is equipped with a soft counter used to keep count of the number of prints made. The reading of the counter is indicated by a press on the Check key on the control panel.

The counter is controlled by the main controller PCB, and the count is incremented in response to the output from the following sensors during copying/printing option.

Copying/printing operation	Sensor used
Single-sided	Finisher delivery sensor
Double-sided	1st side: PS14
	2nd side (finisher delivery sensor)

T03-300-01

The counter operates in a total of 16 modes (8 large-size mode and 8 small-size mode); the following shows the basic counter modes:

Copier/printer mode	Large-size	Small-size*1
Local copy	A	B
PDL print	C	D
Box print	E	F
Remote copy print	G	H
Fax reception print*2	I	J
Report print	K	L
Double-sided print	M	N
Scan	O	P

*1: At time of shipment from the factory, B4 or smaller: to count B4 as large-size, the setting may be changed in service mode.

*2: The machine is not equipped with a fax function, so that fax reception pages are not counted.

T03-300-02

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The following shows the specifications of the counters selected at time of shipment according to destinations:

Counter	Description*1	Default indication		Default setting*2
		100 V	208/230 V	
Counter 1	Total (A to L)	ON	ON	Fixed
Counter 2	Total large (ACEGIK)	OFF	ON	May be changed
Counter 3	Copy 1 (ABGH)	OFF	ON	May be changed
Counter 4	Copy 1 large (AG)	OFF	ON	May be changed
Counter 5	Print 1 total (CDEF)	OFF	OFF	May be changed
Counter 6	Fax total (IJ)	OFF	OFF	May be changed

*1: The notation within parentheses indicates the mode (T02-300-02) used by each basic counter.

*2: The specifications of the counter may be changed or the display of the counter may be enabled/disabled in service mode (However, the specifications of the counter 1 cannot be changed).

T03-300-03

4 Controlling the Power Supply

4.1 Outline

The main controller PCB has the following power supply mode, in addition to the mode turned on or off by the main power switch (power supply off mode):

- Standby mode (normal operation)
- Power save mode
- Lower power mode
- Sleep mode
- Off mode

4.2 Power Supply Mode

The machine has the following five modes for +3.3 V all-night (3.3 VB), +3.3 V non-all night (3.3 VA), +5 V non-all night (5 V), and +24 V:

Mode	+3.3 V all night	+3.3 V non-all night	+5 V all night	+24 V
Standby	○	○	○	○
Power save	○	○	○	○
Low power	○	○	○	○
Sleep	○	×	×	×
Off	○	×	×	×
Power supply off	×	×	×	×

T03-402-01

4.3 Standby Mode (normal operation)

In standby, mode, the machine is in operation or is ready to start normal operation; in this sense, almost all components of the machine are supplied with power.

Not only the main controller PCB, but also the reader unit, printer unit, and control panel are all supplied with power and ready for communication and control.

4.4 Power Save Mode

All components are supplied with power (i.e., the same as in standby mode). Depending on the selected rate of saving, the control temperature of the fixing assembly is lowered to reduce the power consumption.

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4.5 Low-Power Mode

In lower power mode, the temperature of the fixing assembly is lowered (140 °C); the power to the reader unit and the printer unit is reduced to save on the power consumed by the machine.

4.5.1 Shift from Standby Mode (standby → low-power)

A shift is made from standby mode to low-power mode under the following conditions:

- When standby mode continues for a specific period of time, and the selected time interval (may be changed in user mode) has passed.

4.5.2 Shift to standby Mode (low-power mode → standby)

A shift is made from low-power mode to standby mode under the following conditions:

- When the control panel power switch (soft switch) is turned on.
- When PDL data is received form the network (parallel port; electrically speaking, the control panel is off as in standby mode).

4.6 Sleep Mode

In sleep mode, only the +3.3V all-night (3.3 VB) power supply remains on. The CPU itself on the main controller PCB is at rest, stopping the program, and waits for an interrupt, thereby reducing the power consumption.

This mode is used only when the machine is used as a printer equipped with a network option and a PDL print option.

4.6.1 Shift from Standby Mode (standby → sleep)

A shift is made from standby mode to sleep mode under the following conditions:

- When the control panel switch (soft switch) is turned off.
- When standby mode has continued for a specific period of time, the selected time interval (may be changed in user mode) has passed.

4.6.2 Shift from Low Power Mode (low-power mode → sleep)

A shift from low-power mode to sleep mode is made under the following conditions:

- When the control panel power switch (soft switch) is turned off.
- When low-power mode has continued for a specific period of time, and the selected time interval (may be changed in user mode) has passed.

4.6.3 Return to Standby Mode (sleep → standby)

A shift is made from sleep mode to standby mode under the following conditions:

- When the control panel power switch (soft switch) is turned on.
- When PDL data is received from the network (parallel port; electrically speaking, when the control panel remains off as in standby mode).

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4.7 Off Mode

In off mode, the +3.3V all-night power supply for the CPU itself is also turned off, leaving only a minimal number of logic circuits on the main controller PCB supplied with power.

This mode is used only when the machine is used on its own without a network option or a PDL print option.

4.7.1 Shift from Standby Mode (standby → off mode)

A shift its made from standby mode to off mode under the following conditions:

- When control panel power switch (soft switch) is turned off.
- When standby mode has continued for a specific period of time, and the selected time interval (may be changed in user mode) has passed.

4.7.2 Shift from Low-Power Mode (low-power → off mode)

A shift is made from low-power mode to off mode under the following conditions:

- When the control panel power switch (soft switch) is turned turned off.
- When low-power mode has continued for a specific period of time, and the selected time interval (may be changed in user mode) has passed.

4.7.3 Return to Standby Mode (off mode → standby)

In off mode, return to standby mode using an external command is not possible, requiring turning on the control panel power switch (soft switch) or turning off and then on the main power switch.

The operations upon return will be exactly the same as when the machine is first started up.

4.8 Power Supply Off Mode

The machine is in power supply off mode when its main power switch remains off. To return from power supply off mode, the main power switch must always be turned on, and return will be automatic to standby mode.

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CHAPTER 4

INSTALLATION

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1 Selecting the Site

The site of installation must meet the following requirements; if possible, visit the user's before delivery of the machine:

1. The site must provide with a power outlet that is rated to suit the machine and that can be used exclusively by the machine; iR8500: 100V Model (90~110V, 20A or more) / iR7200: 100V Model (90~110V, 15A or more), 208V Model (188~228V, 12A or more), 230V Model (198~264V, 13A or more).
2. The site must be between 15° and 30°C in temperature and between 5% and 80% in humidity. Particularly, be sure to avoid areas near water faucets, water boilers, humidifiers, and refrigerators.
3. The site must not be near a source of fire, subject to dust or ammonium gas, or exposed to direct rays of the sun. As necessary provide curtains.
4. The level of ozone generated by the machine will not affect the health of individuals around it. Some, however, may find its odor unpleasant as while remaining in contact with it for long hours. Be sure that the room is well ventilated.
5. Make sure that the feet of the machine will remain in contact with the floor, and the machine will be kept level.
6. Make sure that the machine will be at least 10 cm away from any walls, allowing enough space for work.

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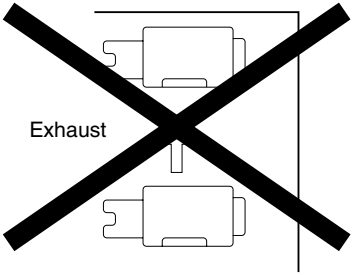
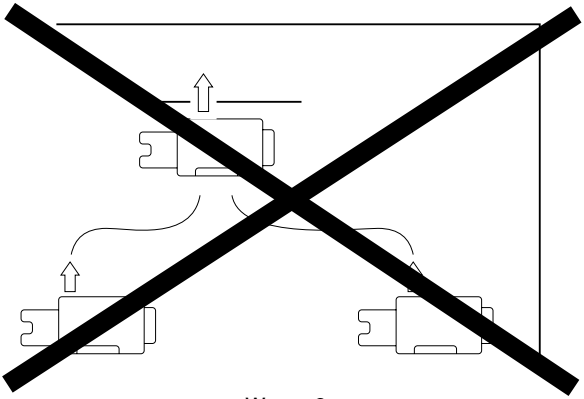
7. Install the machine in a well-ventilated area.
   If multiple machines exist, make sure that the exhaust of one sill not be drawn into another.
   Do to place the machine to block the air inlet of the room.



Wrong 1

F04-100-01

In general, the silicone gas (silicone oil evaporating from the fixing assembly) generated by a copier tends to soil the corona charging wire, reducing the life of the charging wire. This is particularly true of a low-humidity environment.



Wrong 2

F04-100-02

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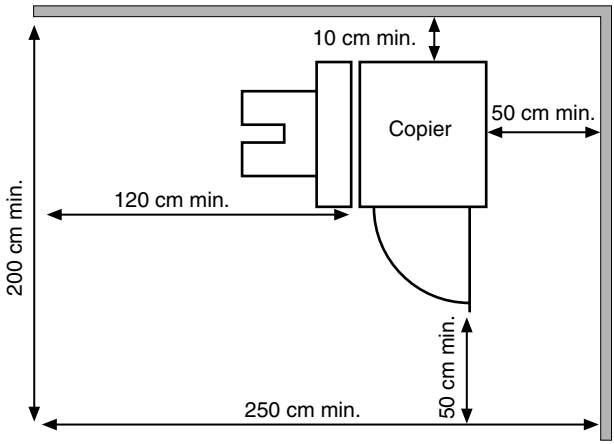
Outline of the Work Space

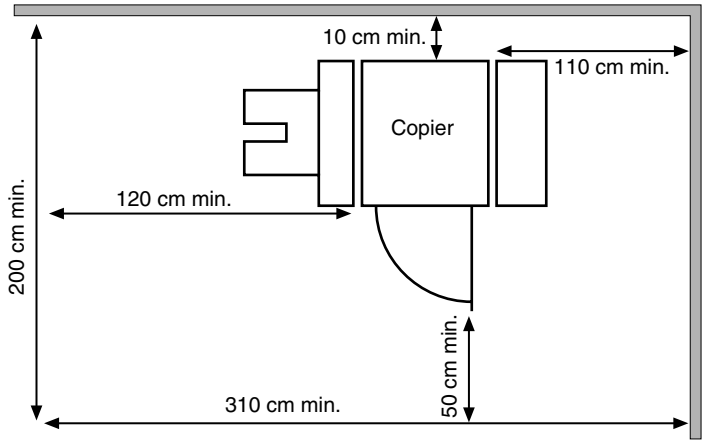
Refer to the following diagrams for an idea of how much space is needed for servicing work:

■Copier + Finisher



F04-100-03

■Copier + Finisher + Side Paper Deck



F04-100-04

2 Unpacking and Installation (iR8500 Series)

2.1 Points to Note Before Starting the Installation Work

Go through the following before starting the installation work:

1. Moving a machine from a cold to warm place can cause condensation (in the from of droplets of water on its metal surfaces).
   A machine surffering from condensation can produce image faults. If the machine has just been brought in from a cold place, leave it alone (unpacked) for at least 1 hour or before starting the work.
2. If the machine is moved into or out of the user's along stairs, observe the follwing:
   a. Remove the ADF, fixing/feeding unit, holding tray assembly, and copy paper, and carry them separately from the machin.
   b. When lifting the machine, do not grab the grips on the pickup/delivery assembly; rather, hold it by its four bottom corners.
3. Shift up the two adjusters (front) on the bottom of the machine to make sure that they are unlocked. Further, take care not to lose the adjusters, which can slip off the bottom because of vibration occuring in transit.
4. Work in a group of three or more. Particularly, when removing the pad, assign one person to work at the rear and one at the front, with one removing the pad.
5. Remove the side paper deck or the finisher (options) to prevent damege when bringing in or out the machine.

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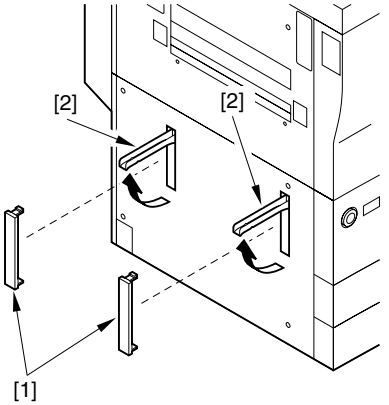
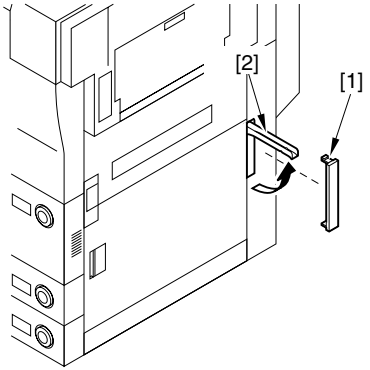
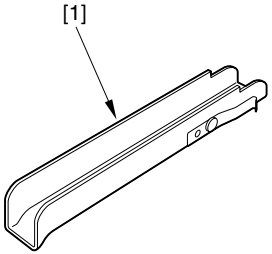
2.1.1 Attachments

Check the attachments against the following list, making sure none of them is missing before starting the installation work:

0. Developing assembly ..... 1 pc.
1. Developing assembly locking plate ..... 1 pc.
2. ADF delivery tray unit (iR8500/8500P) ..... 1 pc.
3. Cassette size label ..... 2 pc.
4. Universal cassette label ..... 2 pc.
5. Size plate ..... 2 pc.
6. Deck size labels ..... 2 pc.
7. Grounding wire ..... 1 pc.
8. Grip ..... 1 pc.
9. Non-Inch tab ..... 6 pc.

A. Toner ..... 1 pc.
B. Index paper attachment ..... 1 pc.
C. Attachment sheet ..... 1 pc.
E. Deck locking plate ..... 1 pc.
F. User's Guide ..... 1 pc.
G. Copying Guide (iR8500/8500P) ... 1 pc.
H. Box Guide ..... 1 pc.
J. CD-ROM unit (iR8500P only) ..... 1 pc.
K. PS Kanji Reference Guide (iR8500P only) ..... 1 pc.
L. LIPS Printer Guide (iR8500B only) ..... 1 pc.
M. Network Guide (iR8500P/iR8500B) ..... 1 pc.
N. Remote UI Guide (iR8500P/iR8500B) ..... 1 pc.
O. License Agreement (iR8500P only) ..... 1 pc.
Q. NetWare License Agreement (iR8500P only) ..... 1 pc.
R. QR Sheet ..... 1 pc.
S. Service Book ..... 1 pc.
T. User Card ..... 1 pc.
U. RS tightening screw (M4×10; iR8500/iR8500P) ..... 3 pc.
RS tightening screw (M4×10; iR8500B) ..... 1 pc.
V. TP screw (M4×6) ..... 6 pc.
W. iR8500/85000/8500B Installation Procedure ..... 1 pc.

2.2 Unpacking

No.	Work	Checks/remarks
1	Unpack the copier. Open the plastic bag. Insert a flat-blade screwdriver into the top of the grip cover [1] (2 pc.) on the left side of the machine, and detach the cover. Shift up the grips [2].	 F04-202-01
2	Detach the grip cover [1] on the right side of the machine (using a flat-blade screwdriver), and shift up the grip [2] at the rear.	 F04-202-02
3	Take out the grip [1] from the box that comes with the machine.	 F04-202-03

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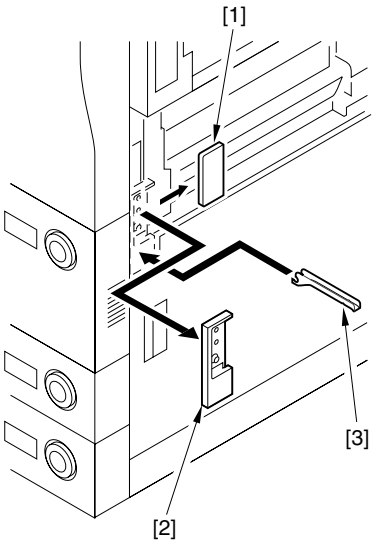
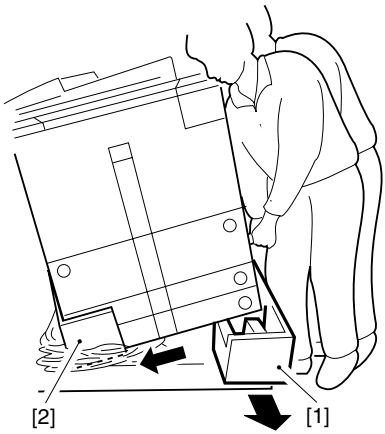
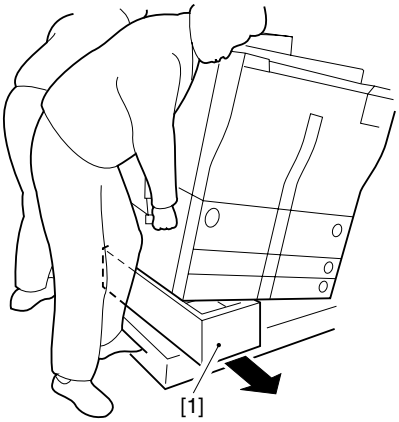
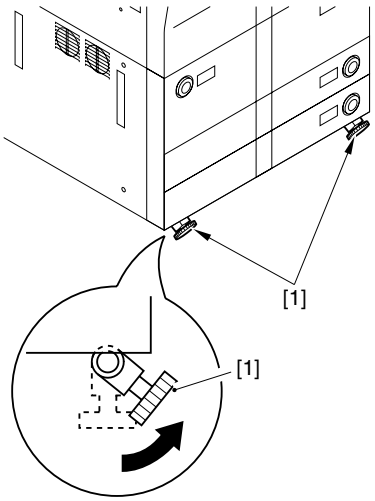
No.	Work	Checks/remarks
4	Open the right upper cover, and slide the small face cover [1] to the rear to detach; then, detach the large face cover [2]. Fit the grip [3] detached in step 3 at the front. Close the right upper cover.	 F04-202-04
5	Holding the grips on the pickup side (front, rear) for the copier, lift the machine slightly to remove the pad [1]. At this time, move the plastic bag [2] toward the remaining pad.	 F04-202-05

No.	Work	Checks/remarks
6	Holding the grips on the delivery side (front, rear) of the copier, lift the machine slightly to remove the remaining pad [1] and the plastic bag at the same time.	 F04-202-06
7	Shift up the 2 adjusters [1] (front) found on the bottom for the copier, and check that they are unlocked.	 F04-202-07

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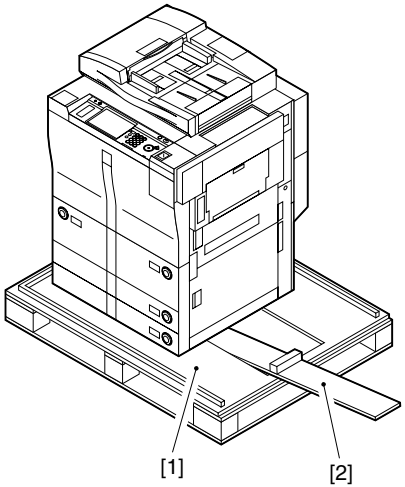
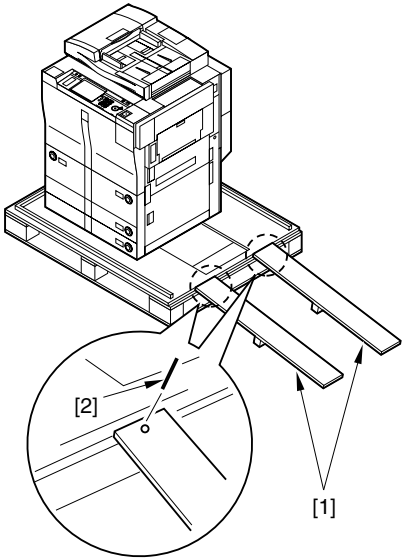
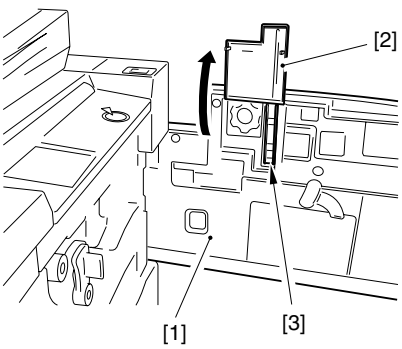
No.	Work	Checks/remarks
8	Take out the 2 slope plates [2] from the middle of the skid [1].	 F04-202-08
9	Remove the 2 pins [2] taped in place to the slope plate [1]. Turn over the slope plate [1], and fit the pin [2] (1 pc. each) while matching the pin holes in the skid and the pin hole in the slope plate. Holding the grips (front, rear) on the delivery side of the copier, slide the machine along the slope plates, then off the skid.	 F04-202-09
10	Take out the parts and attachments from the cardboard box that comes with the machine; then, check to make sure that none of the foregoing items is missing.	

No.	Work	Checks/remarks
11	Open the front cover [1] and then the compartment cover [2]; then, store the grips [3] used in step 4 in the compartment behind the front cover. Close the compartment cover, and close the front cover.	 F04-202-10
12	Mount the removed face covers to the right and left sides. Open the right upper cover, and mount the small and large face covers. Close the right upper cover.	

If condensation is found on the outside or inside of the machine after unpacking, stop the work before moving to the next step so that the machine will become used to the room temperature.
Be sure of the absence of condensation when resuming the work.

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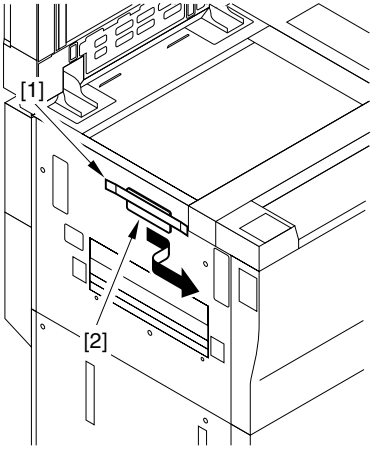
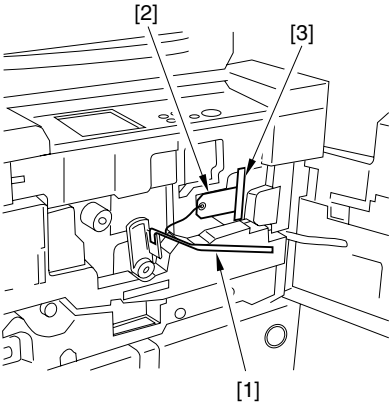
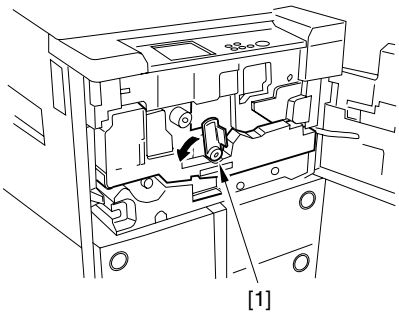
2.3 Mounting the Scanner System (iR8500/iR8500P)

No.	Work	Checks/remarks
1	Remove the packing tape from the copier.	
2	Open the ADF. Remove the copyboard glass protective padding.	
3	Remove the tape [1], and slide the scanner fixing [2] toward the front to detach (Store away the fixing for possible relocation of the machine in the future).	 F04-203-01

2.4 Mounting the Fixing Assembly

No.	Work	Checks/remarks
1	Open the front cover.	
2	Remove the tape [1] from the front of the inside cover and the tape [3] used to keep the tag [2] in place.	 F04-204-01
	Shift down the fixing/feeding assembly releasing lever [1] in the direction of the arrow (left) to unlock the transfer/separation charging assembly.	 F04-204-02

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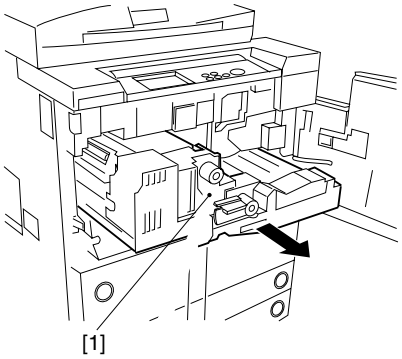
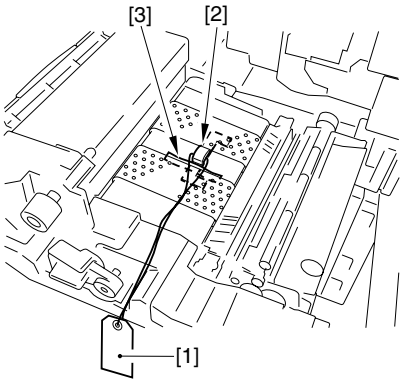
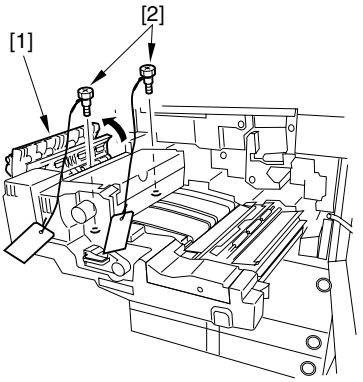
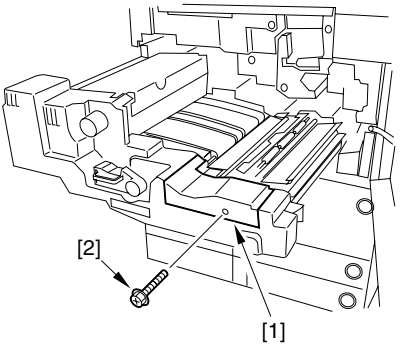
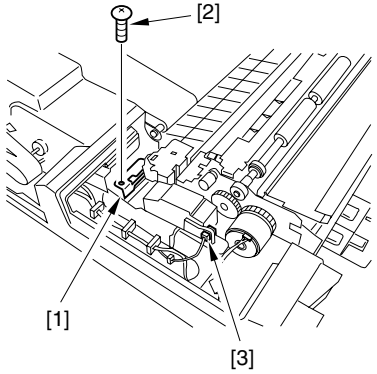
No.	Work	Checks/remarks
	Slide out the fixing/feeding unit [1] toward the front.	 F04-204-03
3	Remove the tag [1] of the fixing/feeding assembly and the separation releasing member [2]. Be sure to remove any foreign matter (e.g., glue left behind by the tape [3]) from the feeding belt.	 F04-204-04
4	Remove the tape used to keep the tag in place, and open the top [1] of the fixing/feeding assembly; then, remove the 2 fixing nip releasing screws [2] at the front and rear. Close the top of the fixing/feeding unit.	 F04-204-05

2.5 Mounting the Charging Assembly

No.	Work	Checks/remarks
1	Remove the screw [2], and detach the transfer/separation assembly front cover [1].	 F04-205-01
2	Remove the fixing [1] (1 screw [2]), and disconnect the connector [3].	 F04-205-02

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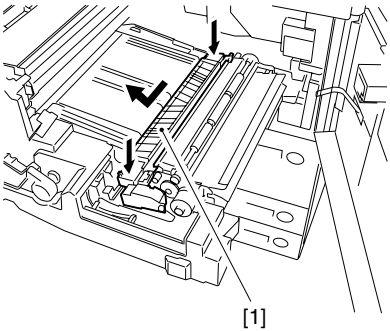
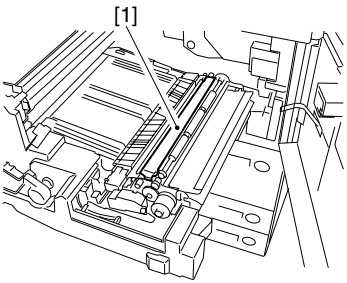
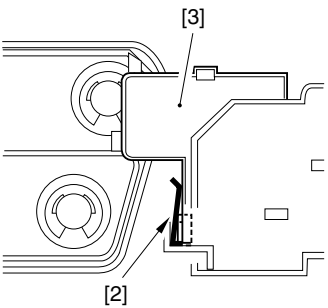
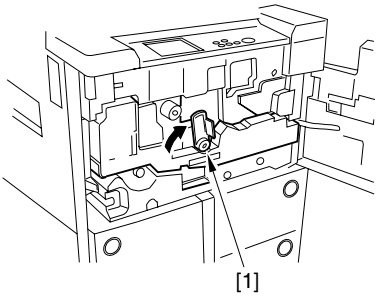
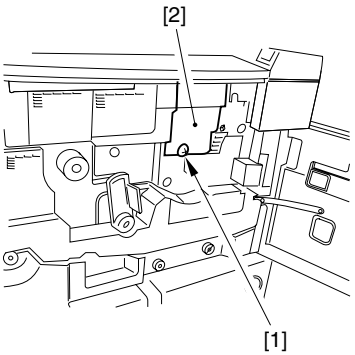
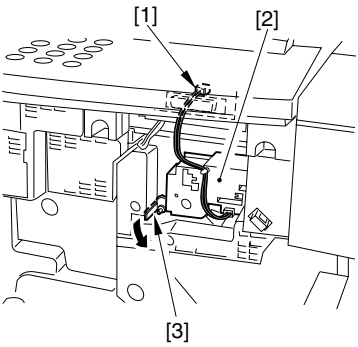
No.	Work	Checks/remarks
3	While holding down the front and rear of the transfer/separation charging assembly [1], pull it by 1 cm toward the front; then, detach it toward the upper left. Using alcohol, clean the transfer/ separation charging wire.	 F04-205-03
4	While keeping the following in mind, mount the transfer/separation charging assembly: • The solvent must completely be dry. • The gut wire must not be brought into contact with the transfer guide [1] to avoid a cut. • The grounding plate [2] must be on the outside of the charging assembly frame [3] (See the figure).	 F04-205-04  F04-205-05
5	Connect the connector of the transfer/ separation charging assembly, and mount the fixing.	

No.	Work	Checks/remarks
6	Using a screw, mount the toner/separation charging assembly front cover. Push in the fixing/feeding assembly inside the machine, and shift the fixing/feeding assembly releasing lever [1] back into position.	 F04-205-06
7	Remove the screw [1], and detach the primary charging assembly front cover [2].	 F04-205-07
8	Disconnect the connector [1], and release the locking lever [3] of the primary charging assembly [2]; then, take out the primary charging assembly. Using alcohol, clean the primary charging assembly and the grid wire. REF. Do not start mounting work before the solvent has become completely dry.	 F04-205-08

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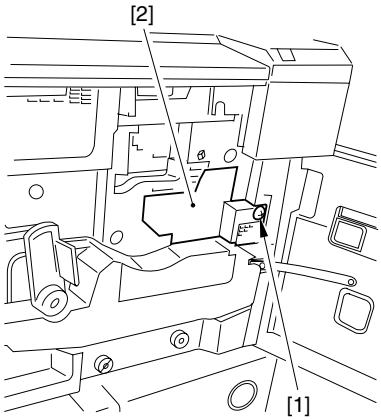
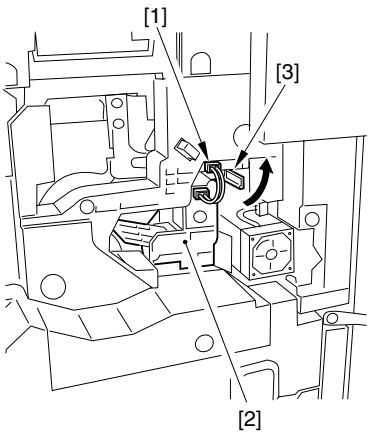
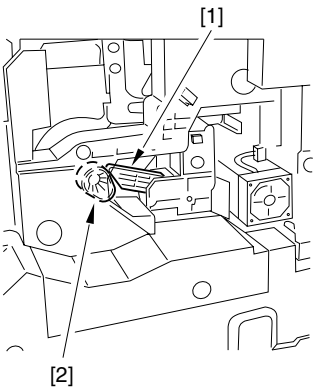
No.	Work	Checks/remarks
9	Remove the screw [1], and detach the pre-transfer charging assembly cover [2].	 F04-205-09
10	Disconnect the connector [1], and release the locking lever [3] of the pre-transfer charging assembly [2]; then, take out the pre-transfer charging assembly. Using alcohol, clean the pre-transfer charging wire.	 F04-205-10
11	With the lock released, slide in the primary charging assembly, and connect the connector. Check to make sure that the solvent is fully dry.	

No.	Work	Checks/remarks
12	With the lock released, slide in the pre-transfer charging assembly, and connect the connector. • Check to make sure that the solvent is fully dry. • Check to make sure that the one-way arm [1] of the pre-transfer charging assembly is on the eccentric cam [2].	 F04-205-11
13	Mount the primary charging assembly cover and the pre-transfer charging assembly cover with a screw (1 pc. each).	
14	Close the front cover.	

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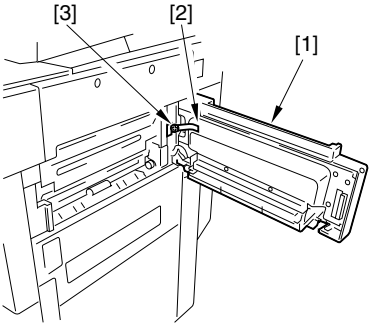
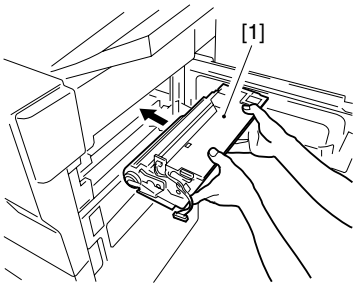
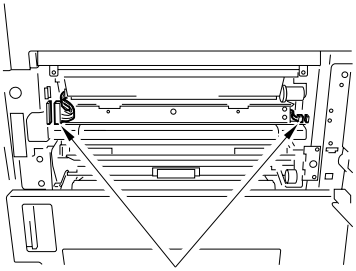
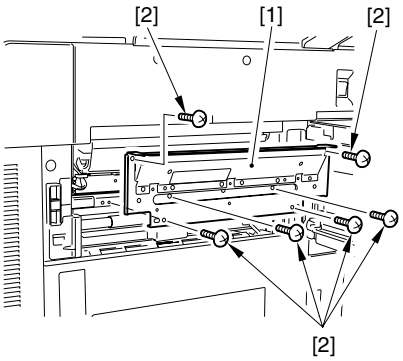
2.6 Checking the Developing Assembly

No.	Work	Checks/remarks
1	Remove all the tape used for the tag on the right side of the copier. Open the manual feed tray unit [1], and remove the screw [3] from the cover tape [2]. Take care. The cover tape can tear if you open the manual tray unit excessively.	 F04-206-01
2	Take out the developing assembly from the package that comes with the machine. Turn the developing assembly cylinder gear by hand, and check the cylinder for scratches.	
3	Holding the developing assembly [1] as shown, fit it to the machine. When fitting the developing assembly to the machine, lower it from above while taking care not to bring the developing cylinder into contact with the plate of the developing assembly base. Connect the 2 connectors [2].	 F04-206-02  F04-206-03

No.	Work	Checks/remarks
4	Secure the developing assembly locking unit [1] in place using the 6 TP screws [2] (M4×6; black). Check to make sure that the developing assembly locking unit is firmly in contact; otherwise, image faults can occur (In particular, be sure it is not riding over the boss at the bottom).	 F04-206-04
5	Put back the screw removed previously to the door tape of the manual feed tray cover (Keep the manual feed tray cover open).	

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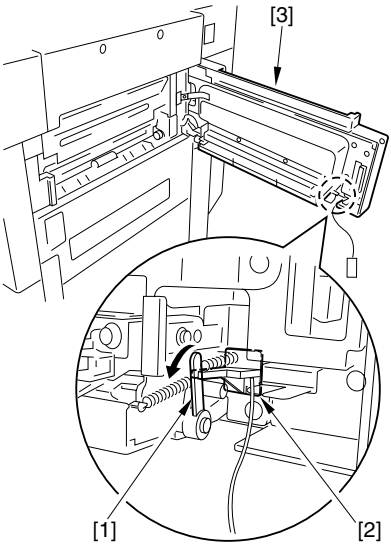
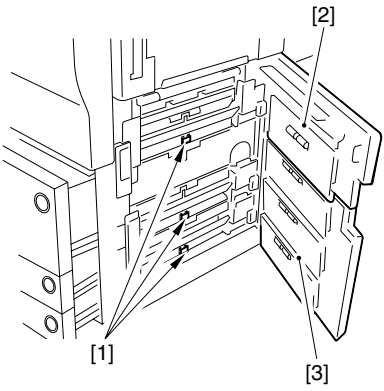
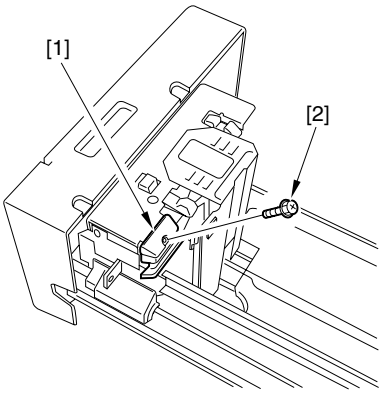
2.7 Mounting the Pickup Assembly

No.	Work	Checks/remarks
1	Shift the lever [1] in the direction of the arrow, and remove the pickup roller releasing spacer [2] identified by a tag. Close the manual feed tray unit [3].	 F04-207-01
2	Open the right upper cover and right lower cover; then, press the releasing buttons of the front deck (right) and cassettes 3 and 4, and slide them out halfway.	
3	Remove the 3 pickup roller releasing spacers [1]. Close the right upper cover [2] and right lower cover [3]. Slide back the front deck (right) and cassettes 3 and 4.	 F04-207-02

No.	Work	Checks/remarks
4	Press the releasing button of the front deck (left), and slide it out to the front. Secure the deck locking plate [1] that comes with the machine to the front deck (left) using an RS tightening screw [2] (M4×10; white). Close the front deck (left).	 F04-207-03

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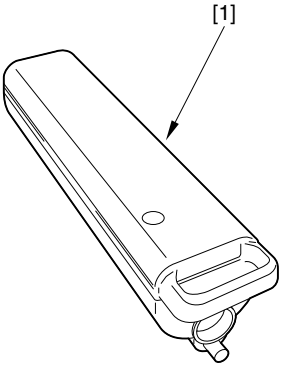
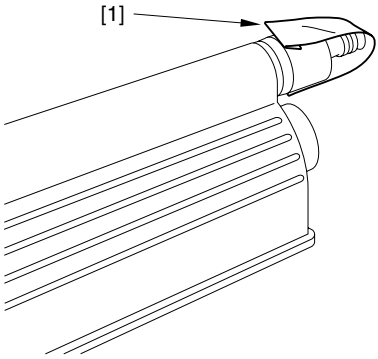
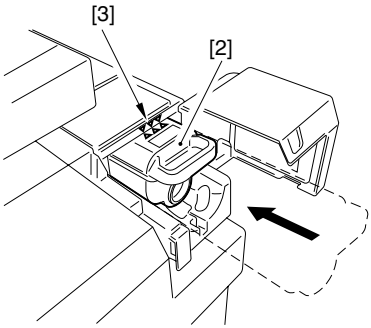
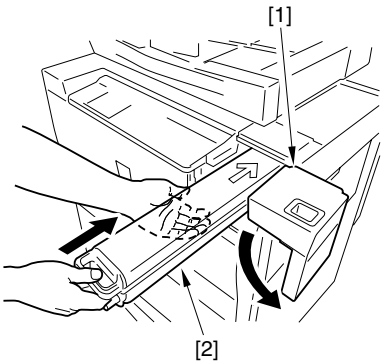
2.8 Supplying the Toner

No.	Work	Checks/remarks
1	Take out the toner cartridge [1] from the package.	 F04-208-01
2	Remove the fixing tape [1].	 F04-208-02

No.	Work	Checks/remarks
3	Open the hopper cover [1], and insert the toner cartridge [2] from the front of the copier. Be sure to insert the toner carridge so that its ▲ marking and the copier's ▼ marking match [3].  F04-208-03	 F04-208-04
4	Close the hopper cover.	

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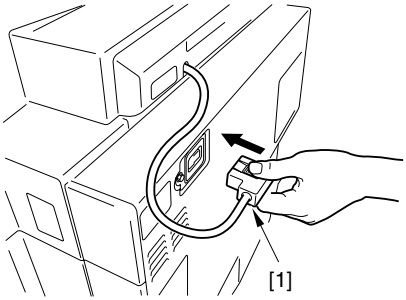
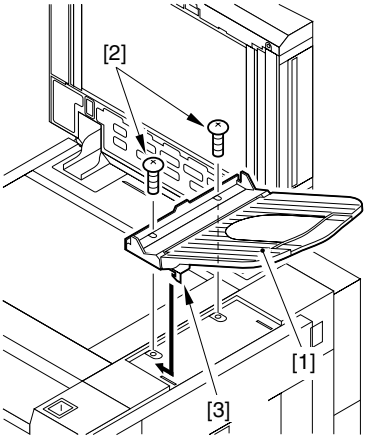
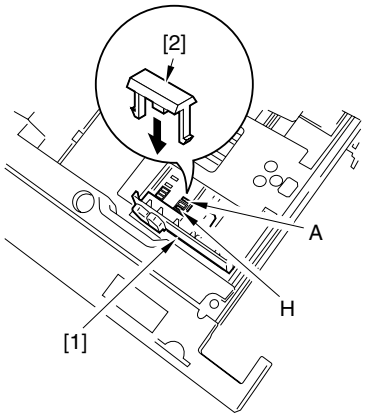
2.9 Installing the ADF (iR8500/iR8500P)

No.	Work	Checks/remarks
1	Remove the face plate of the connector for the ADF from the copier.	
2	Connect the ADF connector [1] to the socket found at the back of the copier.	 F04-209-01
3	With the ADF open, mount the ADF original tray [1] using 2 RS tightening screws [2] (M4×8; white). When mounting, fit the hook [3] of the ADF tray into the notch in the copier; then, slide it to the left, and secure it with screws.	 F04-209-02

2.10 Cassette

No.	Work	Checks/remarks
1	Go through the following steps only if Inch-configured paper is not going to be used. Press the releasing buttons of cassettes 3 and 4, and slide out the cassettes to remove the packing material.	
2	Set the side guide plate [1] of cassettes 3 and 4 into the hole (A4/A3) identified by the marking M. Fit the non-Inch tab [2] that comes with the machine into the hole identified by the following marking, making sure that it will not be pushed up from inside the cassette: A:STMT-R H:LTR-R	 F04-210-01

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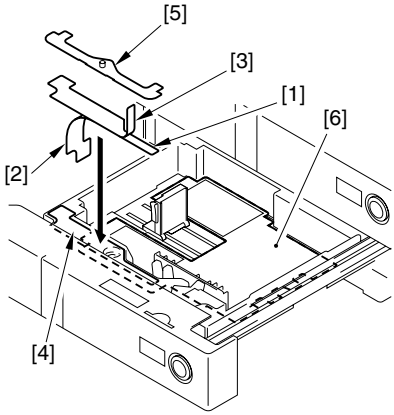
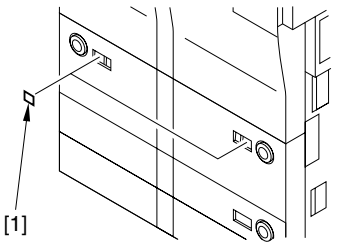
2.11 Index Paper Attachment

No.	Work	Checks/remarks
1	Decide on either cassette 3 or 4 for use for index paper. Press the releasing button for the cassette, and slide it out to the front. Peel the backing sheet [2] and the protective sheet [3] from the attachment sheet [1], and attach the attachment sheet to the area [4] indicated in the figure.	 F04-211-01
2	Place the index paper attachment [5] over the attachment sheet.	
3	Fit the base sheet [6] in the cassette. Slid out the cassette.	

2.12 Attaching the Labels, Setting Paper, Checking Images/ Operations, and User Mode

No.	Work	Checks/remarks
1	Check to make sure that the front deck and the cassette are free of any packing material.	
2	Ground the copier using the grounding wire. Check to make sure that the grounding wire is correctly secured; otherwise, the leakage breaker may fail to operate normally.	Point of Grounding 1) Grounding terminal in a power outlet. 2) Copper rod buried in the ground to a depth of 75 cm or more. 3) Grounding terminal prepared under appropriate Government regulations.
3	Connect the power plug to the power outlet, and turn on the main power switch.	• Adjust the contrast of the control panel display using the Image Contrast dial for the best view, and advise the user on the use of the dial. • Check to see that the Add Paper message goes ON. • Press the keys on the keypad and the Clear key to see that the copy count is correctly indicated.
4	Check with the user to decide on a paper size.	
5	Press the release button, and slide out the right/left deck.	To change the size of the front deck (right/left), refer to 2.16.
6	Put paper in the right/left deck.	
7	Slide in the right /left deck, and attach the deck size labels [1] to the paper size plate of the deck.	 F04-212-01

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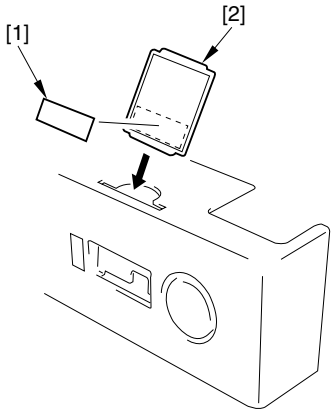
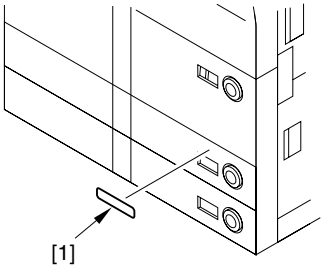
No.	Work	Checks/remarks
8	Press the release button, and slide out the cassette 3/4.	
9	Attach the size label [1] to the paper size plate [2] of the cassette, and set it to the cassette cover.	 F04-212-02
10	Push in the cassettes into the copier.	FL cassette/W1 set
11	Attach the universal cassette label [1] to the cassette to suit the user's needs.	 F04-212-03

No.	Work	Checks/remarks
12	Start service mode. Make the following selections: COPIER>FUNCTION>INSTALL>TONER-S. ↓ See that the following message has appeared: 'Check the Developer'. ↓ Check to see that the developing assembly and the developing assembly locking plate are correctly mounted; then, press the OK key. ↓ The machine starts to supply toner (about 10 min; progress shown on display by count-down). ↓ At the end, make the following selections to generate 2 A3 solid black copies to ensure stable images: COPIER>TEST>PG>PG_PICK. ↓ Enter the number of the source of paper containing A3 paper, and press the OK key ('3' for cassette 3, or '4' for cassette 4). ↓ Make the following selections: COPIER>TEST>PG>TYPE. ↓ Enter '6', and press the OK key ('6' for solid black; PG-TYPE6). ↓ Press the Start key to generate a single solid black (A3) copy. Check the output, and wait for about 5 sec; then, press the Start key once again to generate a second copy. ↓ At the end, press the Reset key twice to end service mode.	Starting Service mode 1) Press the User Mode key. 2) Press the '2' and '8' keys at the same time on the keypad. 3) Press the User Mode key. Never turn off the power while the machine is in operation.

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No.	Work	Checks/remarks
13	Place the Test Sheet on the copyboard glass, and check the copy image. Check to make sure that pickup from each source of paper is normal (Make 3 test copies each from the decks and the cassettes). The first 10 copies or so may show soiled images because of toner dropping from the drum separation claw. This symptom will disappear as more and more copies are made.	• Check to make sure that there is no abnormal noise. • Check the quality of copy images for each default ratio. • Check to make sure that as many copies as set are made. • Check to make sure that copying operation is normal. • If there is a difference in density between left and right, adjust the height of the rear of the primary charging assembly.
14	Make double-sided copies, and check the operation.	
15	Make user mode and service mode settings to suit the needs of the user.	
16	Press the Rest key twice to end service mode.	
17	[If iR8500P] In user mode, make the following to generate a font list: system control settings>install font>print list. Check the output to see that the fonts have been installed.	
18	Clean up the area around the copier.	
19	Move the copier to its final location, and secure it in place using the adjusters.	
20	If you are installing options, do so by referring to the Installation Procedure that comes with each option.	For the Card Reader-D1, see 5.1 “Installing the Card Reader-D1.”
21	Fill out the Service Sheet.	

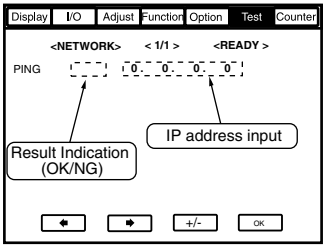
2.13 Connecting to the Network

No.	Work	Checks/remarks
1	Turn off the machine.	
2	Connect the network cable to the machine, and turn on the machine.	
3	Inform the user's system administrator that the machine has been installed, and ask to make network settings for the machine.	

2.14 Checking the Connection to the Network

If the user's network is based on TCP/IP, use the PING function to make sure that the network PCB has correctly been mounted and the network settings have correctly been made.

If the user's network is based on IPX/SPX or AppleTalk, on the other hand, you need not make these checks.

No.	Work	Checks/remarks
1	Using the PING Function 1) Make the following selections in service mode: COPIER>TEST>NETWORK>PING. 2) Enter the IP address using the keypad in the control panel, and press the OK key. 3) Press the Start key. • 'OK' will be indicated if the execution succeeds, while 'NG' will be indicated if it fails.	 F04-214-01
2	Executing the PING function using a remote host address*, you can find out if the connection to the network is correct: * The IP address of a PC terminal operating with a connection to the TCP/IP network to which the machine is connected. 1) Inform the system administrator that you will check the connection to the network using the PING function. 2) Check with the system administrator to find out the remote host address. 3) Enter the remote host address in the PING field. 4) If 'OK' is indicated, the connection to the network is good. 5) If 'NG' is indicated, the connection to the network is not good, requiring you to go through the following:	

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2.15 Troubleshooting Network Faults

If a connection to the network cannot be made, you may suspect the following faults; go through the steps that follow to correct the fault:

a. The connection between the network and the network PCB is poor.
b. The machine's TCP/IP settings are wrong.
c. The network PCB is faulty, or it is not mounted correctly.
d. The user's network is faulty.

No.	Work	Checks/remarks
1	Checking the Connection of the Network Cable 1) Check to make sure the network cable is correctly connected to the network PCB: • If the connection is normal, go to step 2). • If the connection is poor, correct it; then, make a check once again using the remote host address.	
2	Making a Check Using a Loop-Back Address A loop-back address is returned before it reaches the network PCB; as such, executing the PING function using it will enable you to check the TCP/IP settings of the machine. 1) Enter the loop-back address (127.0.0.1) in the PING field. • If 'NG' is indicated, check the TCP/IP settings of the machine once again, and execute the PING function once again. • If 'OK' is indicated, go to step 3).	
3	Making a Check Using a Local Host Address The local host address is the IP address of the machine; as such, when the PING function is executed, the address will be returned after it has reached the network PCB, enabling you to find out if the network PCB is free of faults. 1) Enter the IP address of the machine in the PING field. • If 'NG' is indicated, go through the following checks and actions, and execute the PING function once again. a. The IP address of the machine may be wrong. Check the IP address setting of the machine once again, and check with the system administrator to find out if the assigned IP address is effective. b. The network PCB may have poor connection. Check the connector of the network PCB for connection. c. The network PCB may be faulty. Replace the network PCB. • If 'OK' is indicated, suspect a fault in the user's network environment. Report to the system administrator for correction.	

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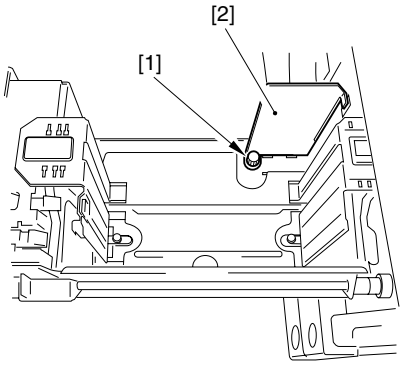
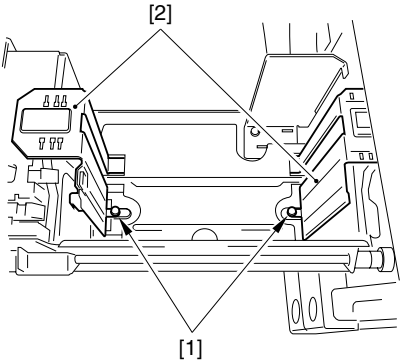
2.16 Changing the Paper Size for the Front Deck (right, left)

No.	Work	Checks/remarks
1	Press the release button, and slide out the deck.	
2	Remove the screw [1] of the rear end guide plate [2], and secure the guide plate [2] to the desired position.	 F04-216-01
3	Remove the screw [1] (1 pc. each) from the left and right of the guide plate [2], and secure the guide plate [2] to the desired position.	 F04-216-02
4	Put paper in the deck.	
5	Slide the deck inside the copier.	

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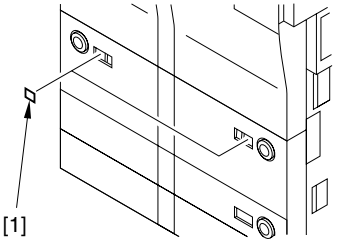
No.	Work	Checks/remarks
6	Attach the new Deck Size labels [1] to the paper size plate of the deck.	 F04-216-03
7	Start service mode, and register the paper size of the front deck. Thereafter, turn off and then on the main power switch.	Right deck : COPIER>OPTION>CST>P-SZ-C1 Left deck : COPIER>OPTION>CST>P-SZ-C2 A4=6 (200V model default), B5=15, LTR=18

3 Unpacking and Installation (iR7200 Series)

3.1 Points to Note Before Starting the Work

Go through the following before starting to install the machine:

1. If the machine is moved from a cold to warm place, it can develop condensation in the form of droplets of water on its metal surfaces.
   Use of the machine while it suffers from condensation can lead to image faults. If the machine has been moved from a cold to warm place, be sure to leave it for 1 hour or more without unpacking so that it becomes fully used to the new place.
2. If stairs are used to move the machine into or out of the site of installation, keep the following in mind:
   a. Take out the ADF, fixing/feeding assembly, holding tray assembly, and copy paper, and carry them separately from the main body.
   b. When lifting the machine, do not use the grips on the pickup assembly/delivery assembly. Instead, be sure to support the machine at four corners of its bottom.
3. Shift up the 2 adjusters (front) found on the bottom of the machine to be sure that they are unlocked. The adjusters can slip out of the bottom of the machine because of vibration during transportation. Take care not to loose them.
4. Be sure to work as a group of three or more. When removing the pad, in particular, one must hold the rear grip and one the front grip, while the other removes the pad.
5. Be sure to remove the options (side paper deck, finisher, paper folding unit) when moving the machine into or out of the site of installation to prevent damage.

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3.1.1 Attachments

Check the attachments against the following list, making sure none of them is missing before starting the installation work:

0. Developing assembly ..... 1 pc.
1. Developing assembly locking plate ..... 1 pc.
3. Cassette size label ..... 2 pc.
3. Universal cassette label ..... 2 pc.
4. Size plate ..... 2 pc.
5. Deck size label ..... 2 pc.
6. Grounding wire ..... 1 pc.
7. Grip ..... 1 pc.
8. Non-Inch tab ..... 6 pc.
9. Toner ..... 1 pc.

A. Index paper attachment ..... 1 pc.
B. Backing ..... 1 pc.
D. Deck locking plate ..... 1 pc.
E. User's Guide ..... 1 pc.
F. Copying Guide ..... 1 pc.
G. Box Guide ..... 1 pc.
H. PS Printer guide (iR7200P only) ..... 1 pc.
J. Network Guide (iR7200P only) ..... 1 pc.
K. Remote UI Guide (iR7200P only) ..... 1 pc.
L. License Agreement (iR7200P only) ..... 1 pc.
M. NetWare License Agreement (iR7200P only) ..... 1 pc.
P. Service Book ..... 1 pc.
Q. User Card ..... 1 pc.
R. Cable for environment heater (100V model only) ..... 1 pc.
S. RS tightening screw (M4×10) ..... 1 pc.
T. TP screw (M4×6) ..... 6 pc.
U. iR7200/7200P Installation Procedure ..... 1 pc.

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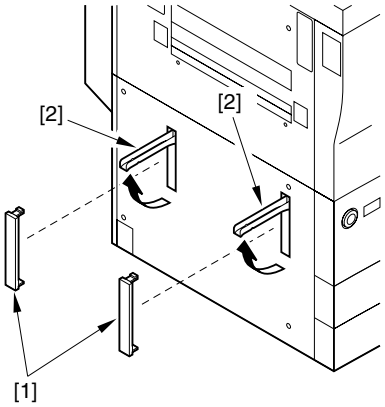
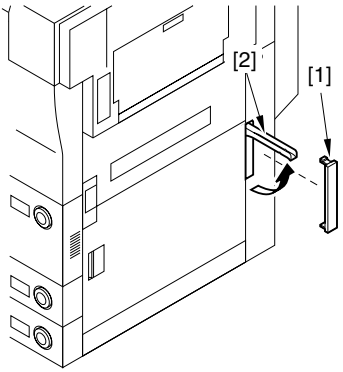
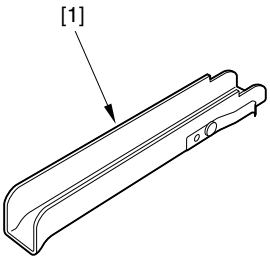
3.2 Unpacking

No.	Work	Checks/remarks
1	Unpack the copier. Open the plastic bag. Insert a flat-blade screwdriver into the top of the grip cover [1] (2 pc.) on the left side of the machine, and detach the cover. Shift up the grips [2].	 F04-302-01
2	Detach the grip cover [1] on the right side of the machine (using a flat-blade screwdriver), and shift up the grip [2] at the rear.	 F04-302-02
3	Take out the grip [1] from the box that comes with the machine.	 F04-302-03

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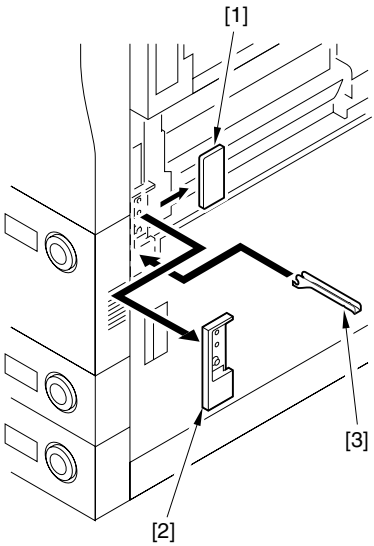
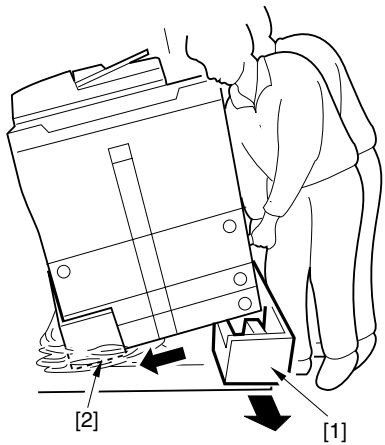
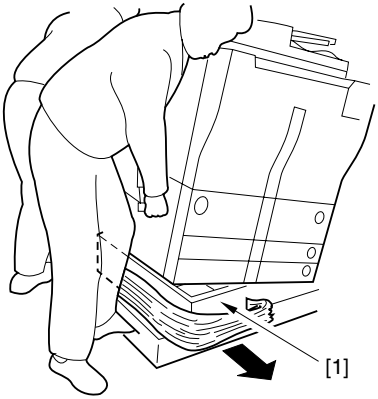
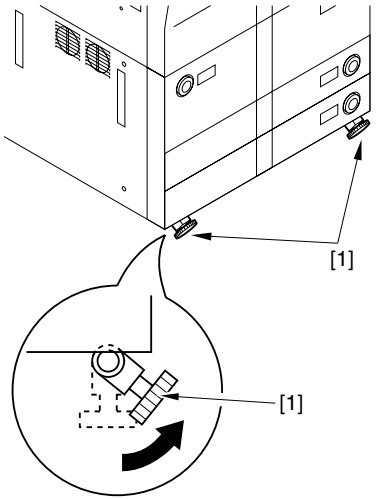
No.	Work	Checks/remarks
4	Open the right upper cover, and slide the small face cover [1] to the rear to detach; then, detach the large face cover [2]. Fit the grip [3] detached in step 3 at the front. Close the right upper cover.	 F04-302-04
5	Holding the grips on the pickup side (front, rear) for the copier, lift the machine slightly to remove the pad [1]. At this time, move the plastic bag [2] toward the remaining pad.	 F04-302-05

No.	Work	Checks/remarks
6	Holding the grips on the delivery side (front, rear) of the copier, lift the machine slightly to remove the remaining pad [1] and the plastic bag at the same time.	 F04-302-06
7	Shift up the 2 adjusters [1] (front) found on the bottom for the copier, and check that they are unlocked.	 F04-302-07

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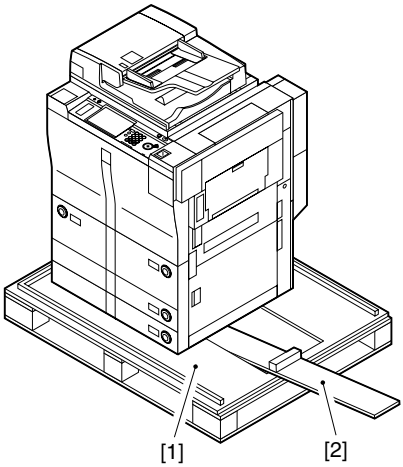
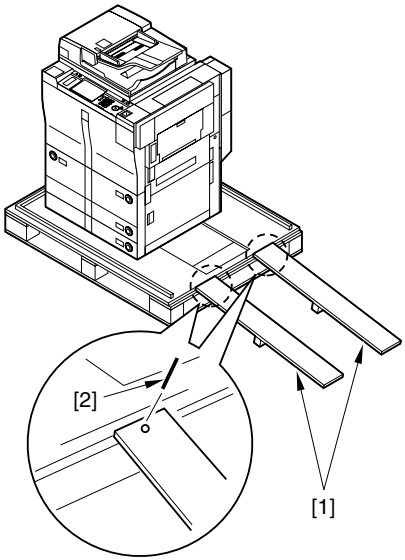
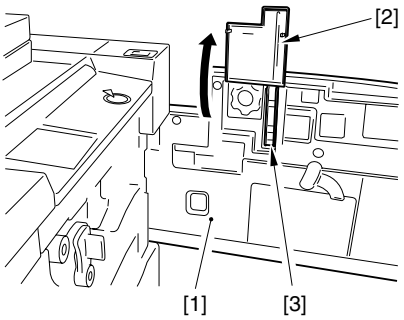
No.	Work	Checks/remarks
8	Take out the 2 slope plates [2] from the middle of the skid [1].	 F04-302-08
9	Remove the 2 pins [2] taped in place to the slope plate [1]. Turn over the slope plate [1], and fit the pin [2] (1 pc. each) while matching the pin holes in the skid and the pin hole in the slope plate. Holding the grips (front, rear) on the delivery side of the copier, slide the machine along the slope plates, then off the skid.	 F04-302-09
10	Take out the parts and attachments from the cardboard box that comes with the machine; then, check to make sure that none of the foregoing items is missing.	

No.	Work	Checks/remarks
11	Open the front cover [1] and then the compartment cover [2]; then, store the grips [3] used in step 4 in the compartment behind the front cover. Close the compartment cover, and close the front cover.	 F04-302-10
12	Mount the removed face covers to the right and left sides. Open the right upper cover, and mount the small and large face covers. Close the right upper cover.	

If condensation is found on the outside or inside of the machine after unpacking, stop the work before moving to the next step so that the machine will become used to the room temperature.
Be sure of the absence of condensation when resuming the work.

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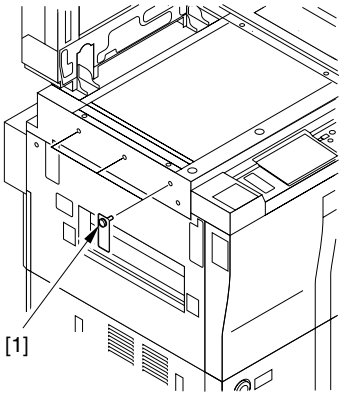
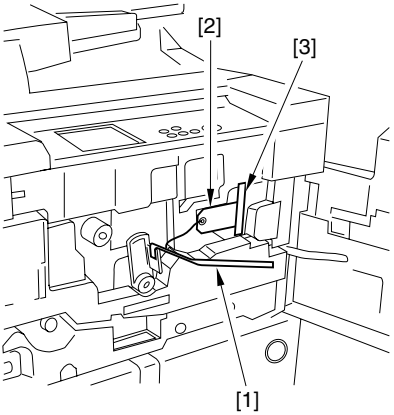
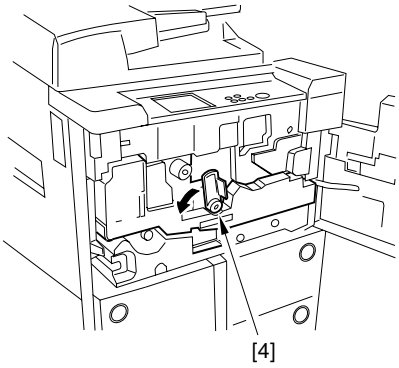
3.3 Mounting the Scanner System (iR8500/iR8500P)

No.	Work	Checks/remarks
1	Remove the packing tape from the copier.	
2	Open the ADF. Remove the copyboard glass protective padding.	
3	Remove the 3 fixing screws [1] for the scanner identified by a tag (Store away the fixings for possible relocation of the machine in the future).	 F04-303-01

3.4 Mounting the Fixing Assembly

No.	Work	Checks/remarks
1	Open the front cover.	
2	Remove the tape [1] from the front of the inside cover and the tape [3] used to keep the tag [2] in place.	 F04-304-01
	Shift down the fixing/feeding assembly releasing lever [4] in the direction of the arrow (left) to unlock the transfer/ separation charging assembly.	 F04-304-02

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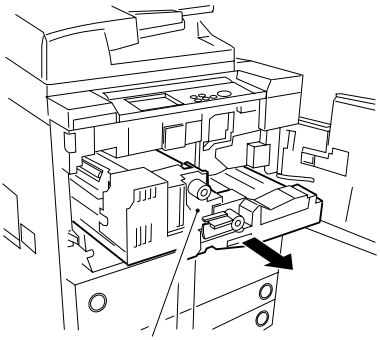
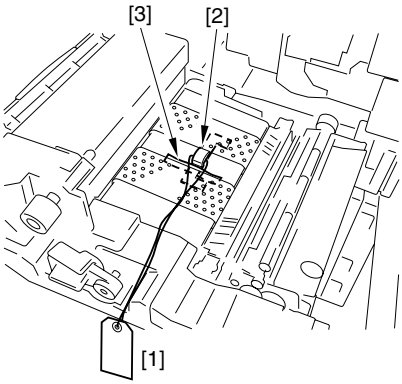
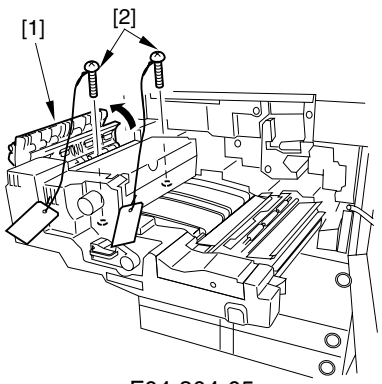
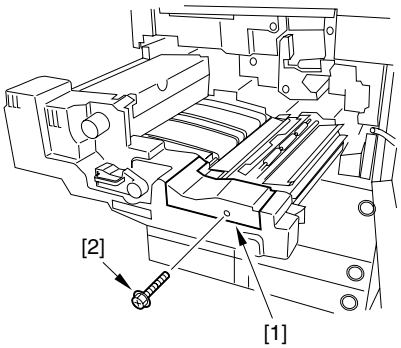
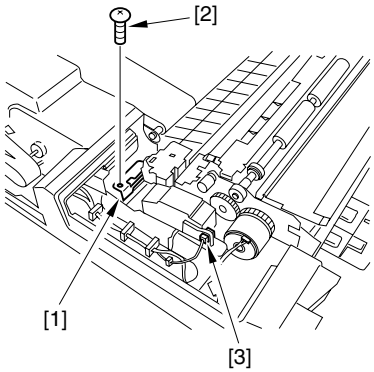
No.	Work	Checks/remarks
	Slide out the fixing/feeding unit [1] toward the front.	 F04-304-03
3	Remove the tag [1] of the fixing/feeding assembly and the separation releasing member [2]. Be sure to remove any foreign matter (e.g., glue left behind by the tape [3]) from the feeding belt.	 F04-304-04
4	Remove the tape used to keep the tag in place, and open the top [1] of the fixing/feeding assembly; then, remove the 2 fixing nip releasing screws [2] at the front and rear. Close the top of the fixing/feeding unit.	 F04-304-05

3.5 Mounting the Charging Assembly

No.	Work	Checks/remarks
1	Remove the screw [2], and detach the transfer/separation assembly front cover [1].	 F04-305-01
2	Remove the fixing [1] (1 screw [2]), and disconnect the connector [3].	 F04-305-02

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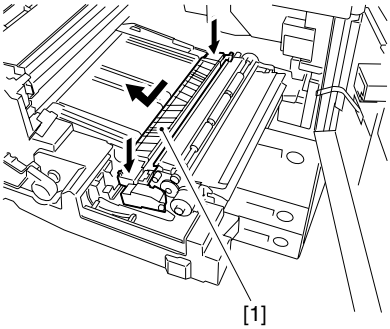
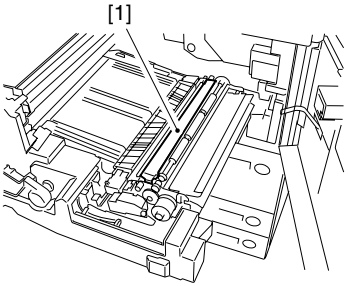
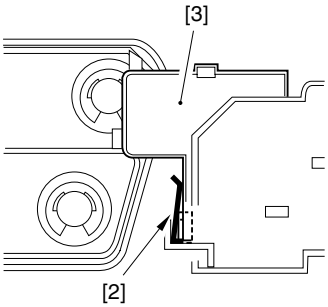
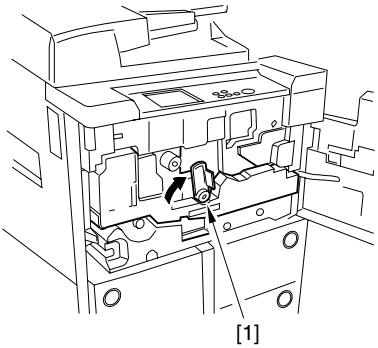
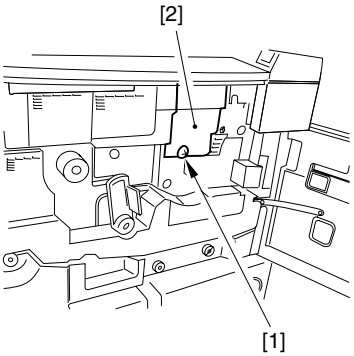
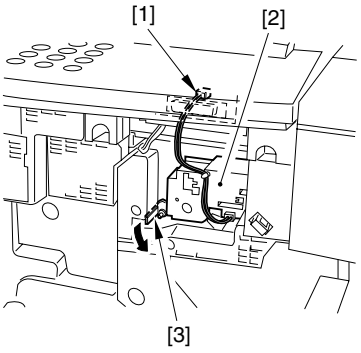
No.	Work	Checks/remarks
3	While holding down the front and rear of the transfer/separation charging assembly [1], pull it by 1 cm toward the front; then, detach it toward the upper left. Using alcohol, clean the transfer/ separation charging wire.	 F04-305-03
4	While keeping the following in mind, mount the transfer/separation charging assembly: • The solvent must completely be dry. • The gut wire must not be brought into contact with the transfer guide [1] to avoid a cut. • The grounding plate [2] must be on the outside of the charging assembly frame [3] (See the figure).	 F04-305-04  F04-305-05
5	Connect the connector of the transfer/ separation charging assembly, and mount the fixing.	

No.	Work	Checks/remarks
6	Using a screw, mount the toner/separation charging assembly front cover. Push in the fixing/feeding assembly inside the machine, and shift the fixing/feeding assembly releasing lever [1] back into position.	 F04-305-06
7	Remove the screw [1], and detach the primary charging assembly front cover [2].	 F04-305-07
8	Disconnect the connector [1], and release the locking lever [3] of the primary charging assembly [2]; then, take out the primary charging assembly. Using alcohol, clean the primary charging assembly and the grid wire. REF. Do not start mounting work before the solvent has become completely dry.	 F04-305-08

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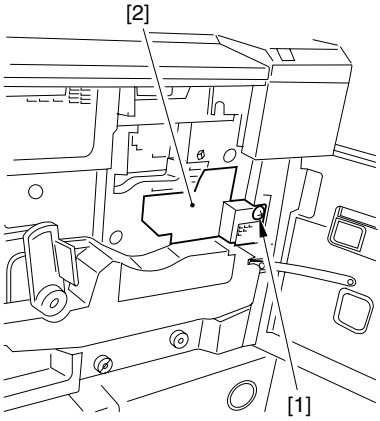
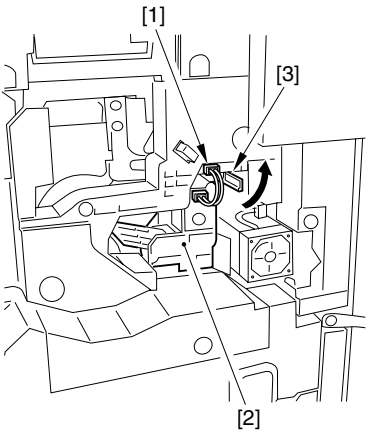
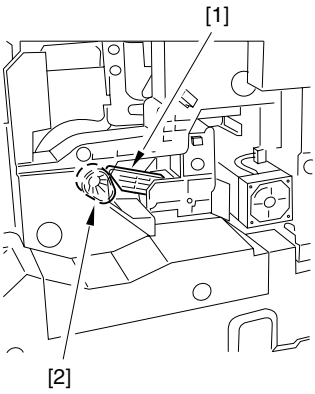
No.	Work	Checks/remarks
9	Remove the screw [1], and detach the pre-transfer charging assembly cover [2].	 F04-305-09
10	Disconnect the connector [1], and release the locking lever [3] of the pre-transfer charging assembly [2]; then, take out the pre-transfer charging assembly. Using alcohol, clean the pre-transfer charging wire.	 F04-305-10
11	With the lock released, slide in the primary charging assembly, and connect the connector. Check to make sure that the solvent is fully dry.	

No.	Work	Checks/remarks
12	With the lock released, slide in the pre-transfer charging assembly, and connect the connector. • Check to make sure that the solvent is fully dry. • Check to make sure that the one-way arm [1] of the pre-transfer charging assembly is on the eccentric cam [2].	 F04-305-11
13	Mount the primary charging assembly cover and the pre-transfer charging assembly cover with a screw (1 pc. each).	
14	Close the front cover.	

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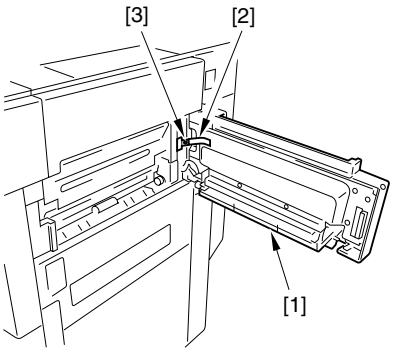
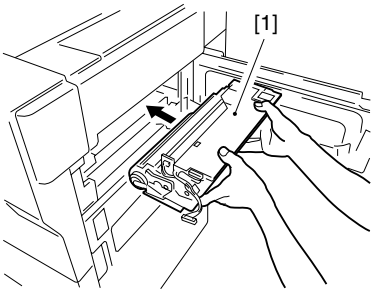
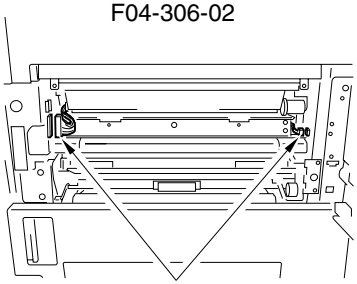
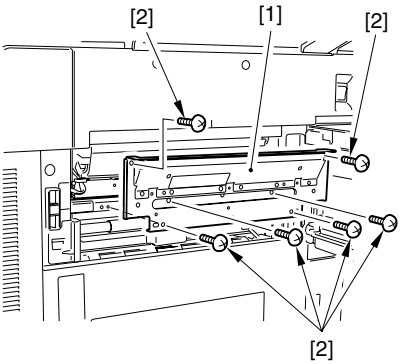
3.6 Checking the Developing Assembly

No.	Work	Checks/remarks
1	Remove all the tape used for the tag on the right side of the copier. Open the manual feed tray unit [1], and remove the screw [3] from the cover tape [2]. Take care. The cover tape can tear if you open the manual tray unit excessively.	 F04-306-01
2	Take out the developing assembly from the package that comes with the machine. Turn the developing assembly cylinder gear by hand, and check the cylinder for scratches.	
3	Holding the developing assembly [1] as shown, fit it to the machine. When fitting the developing assembly to the machine, lower it from above while taking care not to bring the developing cylinder into contact with the plate of the developing assembly base. Connect the 2 connectors [2].	 F04-306-02  F04-306-03

No.	Work	Checks/remarks
4	Secure the developing assembly locking unit [1] in place using the 6 TP screws [2] (M4×6; black). Check to make sure that the developing assembly locking unit is firmly in contact; otherwise, image faults can occur (In particular, be sure it is not riding over the boss at the bottom).	 F04-306-04
5	Put back the screw removed previously to the cover tape of the manual feed tray cover (Keep the manual feed tray cover open).	

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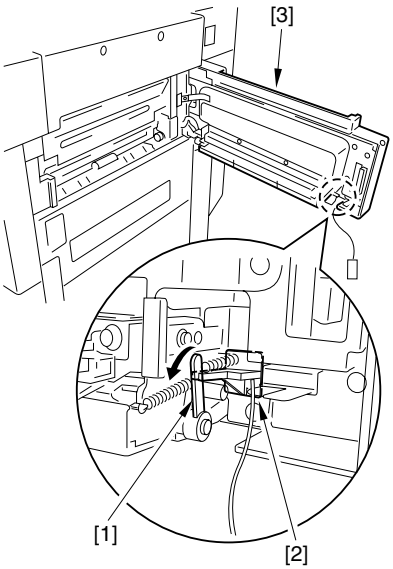
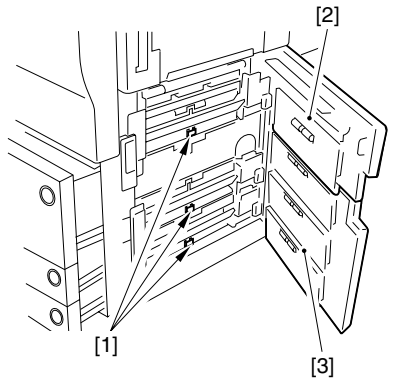
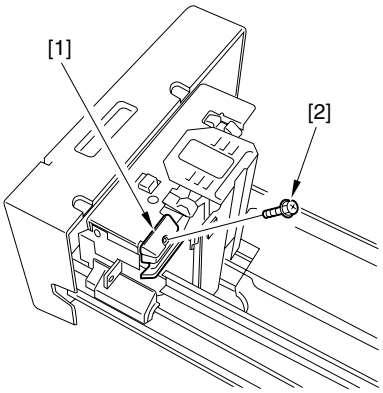
3.7 Mounting the Pickup Assembly

No.	Work	Checks/remarks
1	Shift the lever [1] in the direction of the arrow, and remove the pickup roller releasing spacer [2] identified by a tag. Close the manual feed tray unit [3].	 F04-307-01
2	Open the right upper cover and right lower cover; then, press the releasing buttons of the front deck (right) and cassettes 3 and 4, and slide them out halfway.	
3	Remove the 3 pickup roller releasing spacers [1]. Close the right upper cover [2] and right lower cover [3]. Slide back the front deck (right) and cassettes 3 and 4.	 F04-307-02

No.	Work	Checks/remarks
4	Press the releasing button of the front deck (left), and slide it out to the front. Secure the deck locking plate [1] that comes with the machine to the front deck (left) using an RS tightening screw [2] (M4×10; white). Close the front deck.	 F04-307-03

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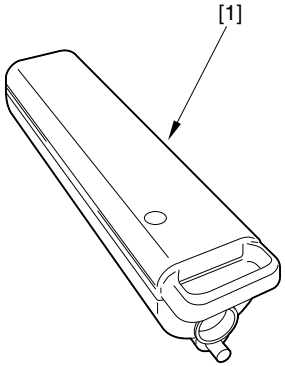
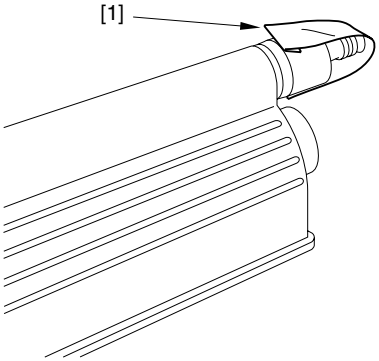
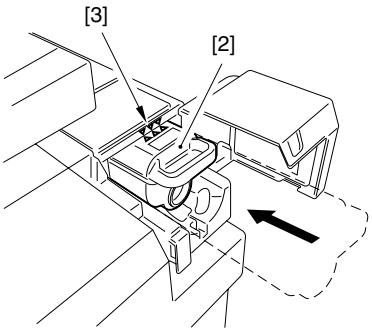
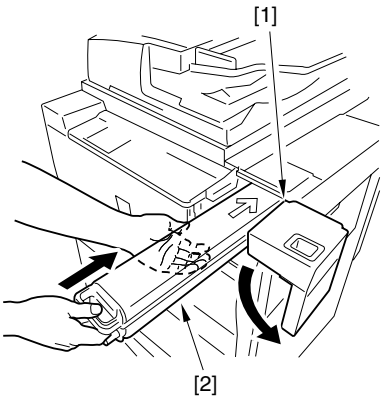
3.8 Supplying the Toner

No.	Work	Checks/remarks
1	Take out the toner cartridge [1] from the package.	 F04-308-01
2	Remove the fixing tape [1].	 F04-308-02

No.	Work	Checks/remarks
3	Open the hopper cover [1], and insert the toner cartridge [2] from the front of the copier. Be sure to insert the toner carridge so that its ▲ marking and the copier's ▼ marking match [3].  F04-308-03	 F04-308-04
4	Close the hopper cover.	

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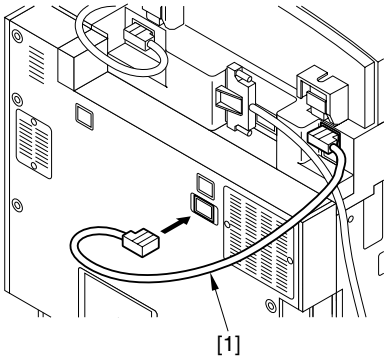
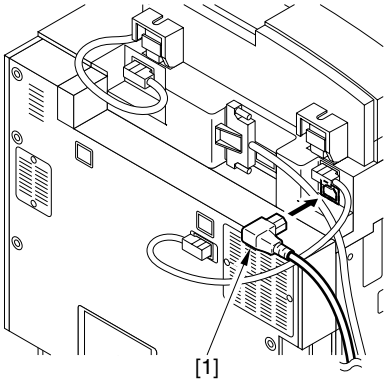
3.9 Connectors

No.	Work	Checks/remarks
1	Connect the cable [1] for the environment heater.	 F04-309-01
2	[If 100V model] As needed, connect the reader unit anti-condensation heater cable [1].	 F04-309-02

3.10 Cassette

2 Unpacking and Installation (iR8500 Series)>2.10 Cassette

3.11 Index Paper Attachment

2 Unpacking and Installation (iR8500 Series)>2.11 Index Paper Attachment

3.12 Setting Label Sheet/Paper, Checking Images and Operation, and Using User Mode

2 Unpacking and Installation (iR8500 Series)>2.12 Attaching the Labels, Setting Paper, Checking Images/Operations, and User mode

3.13 Connecting to the Network

2 Unpacking and Installation (iR8500 Series)>2.13 Connecting to the Network

3.14 Checking the Connection to the Network

2 Unpacking and Installation (iR8500 Series)>2.14 Checking the Connection to the Network

3.15 Troubleshooting Network Faults

2 Unpacking and Installation (iR8500 Series)>2.15 Troubleshooting Network Faults

3.16 Switching the Paper Size for the Front Deck (right, left)

2 Unpacking and Installation (iR8500 Series)>2.16 Changing the Paper Size for the Front Deck (right, left)

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4 Relocating the Machine

After installation, if the machine must be relocated by truck or other means of transportation, perform the following:

No.	Work	Checks	Remarks
1	Make a copy in Direct.		
2	Take out all paper from all cassette.		
3	Turn off the power switch, and disconnect the power plug from the power outlet.		
4	Fix the No. 2 mirror base in place from the left cover side with scanner fixing.	Check to make sure that the No. 2 mirror base does not move.	
5	Take out the developing assembly.	Carry the developing assembly in a separate box.	
6	Tape the transfer charging assembly, fixing/feeding assembly, releasing lever, and lower feeding assembly in place to protect them against vibration.		
7	Tape the front cover, hopper cover, cassettes, and right cover (upper, lower) in place.		
8	Place A3 copy paper on the copyboard glass, and tape the ADF in place.		

A. If stairs are used to move the copier into or out of the user's place, keep the following in mind:
   1. Take out the fixing/feeding assembly, holding tray, and copy paper from the copier, and carry them separately (If an ADF is installed, remove it also).
   2. When lifting the copier, do not use the grips on the pickup/delivery assembly; instead, support it at four corners of the machine bottom.

B. Shift up the 2 adjusters (front) found on the bottom of the copier, and check to make sure that they are unlocked. Take care, as the adjusters can slip out of the machine because of vibration while in transit.

C. Be sure to remove the options (side paper deck, finisher) when moving the copier into or out of the user's place.

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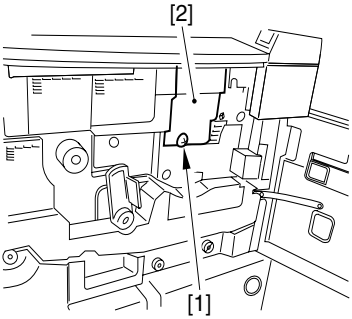
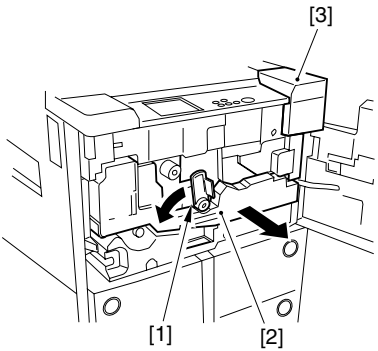
5 Installing the Card Reader-D1

5.1 Installing the Card Reader-D1

Go through the following when installing the Card Reader-D1:

No.	Work	Checks/remarks
1	Start service mode, and make the following selections: COPIER>FUNCTION>INSTALLATION> Card. Enter the lowest of the numbers of the cards to use (1 through 2001). As many as 1000 cards starting with the number you entered my be used.	
2	Turn off the copier's main power switch, and disconnect the power plug.	
3	Open the front cover.	 F04-501-01
4	Remove the screw [1], and detach the primary charging assembly cover [2].	
5	Shift down the fixing/feeding assembly lever [1], and slide out the fixing/feeding unit [2].	 F04-501-02
6	Open the toner cartridge cover [3].	

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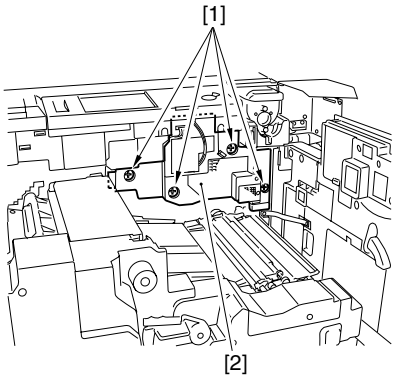
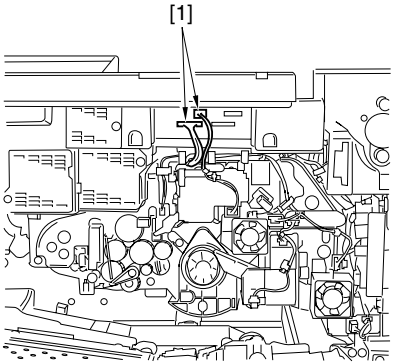
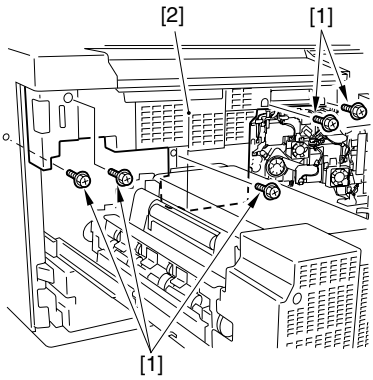
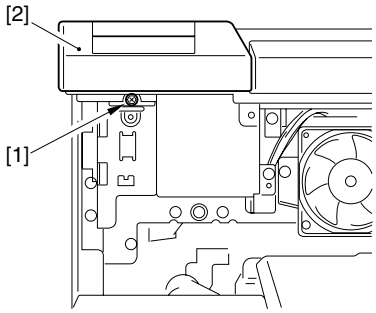
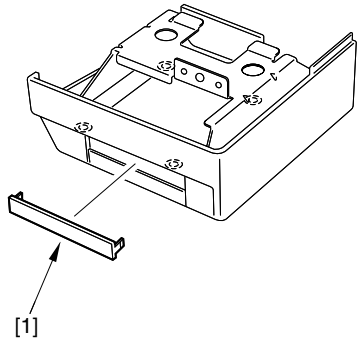
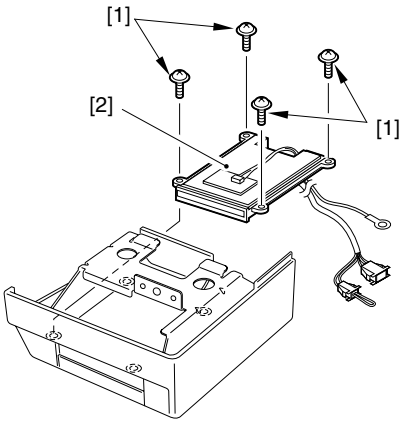
No.	Work	Checks/remarks
7	Remove the 4 screws [1], and remove the process unit cover [2].	 F04-501-03
8	Disconnect the 2 connectors [1].	 F04-501-04
9	Remove the 5 screws [1], and detach the inside upper cover [2].	 F04-501-05

No.	Work	Checks/remarks
10	Remove the screw [1], and detach the card reader case [2] from the top of the machine.	 F04-501-06
11	Remove the face plate [1].	 F04-501-07
12	Using 4 self-tapping screws [1], mount the card reader [2] to the card reader case.	 F04-501-08

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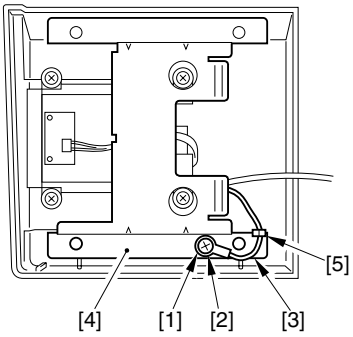
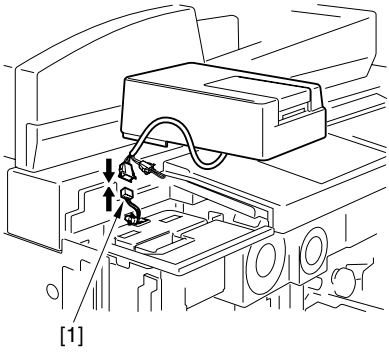
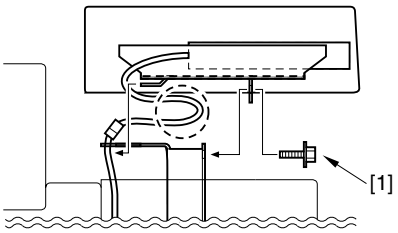
No.	Work	Checks/remarks
13	Using a screw [1] and a toothed washer [2], mount the grounding wire [3] to the card reader case plate assembly [4]. Lead the grounding wire [3] through the edge saddle [5].	 F04-501-09
14	Connect the connector of the card reader to the connector [1] of the machine.	 F04-501-10
15	Using the screw [1] removed in step 10, mount the card reader case to the machine. Take care not to trap the harness indicated with a dashed line.	 F04-501-11

No.	Work	Checks/remarks
16	Mount the inside upper cover (Use the 5 screws, and connect the 2 connectors that have previously been removed).	
17	Mount the process cover unit (4 screws).	
18	Close the toner cartridge cover.	
19	Put back the fixing/feeding unit, and set the fixing/feeding assembly lever.	
20	Close the front cover.	
21	Connect the copier's power plug, and turn on its main power switch.	

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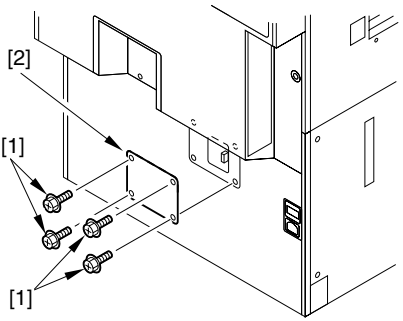
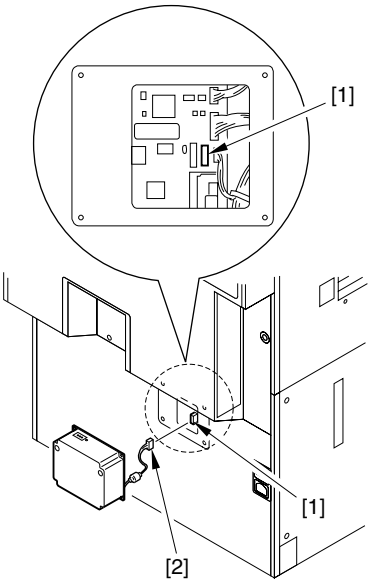
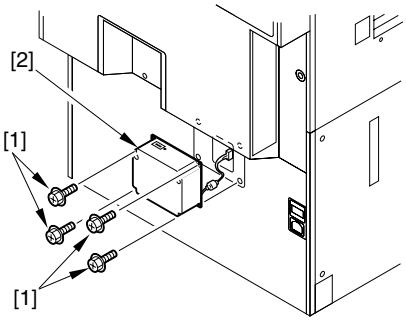
6 Installing the NE Controller-A1/NE Controller-B1/ Copy Data Controller-A1

6.1 Installing the NE Controller-A1/NE Controller-B1/Copy Data Controller-A1

Here, the instructions are limited to installation to the copier. For how to make various settings, checks to make, and points to note, see the Installation Procedure that comes with a specific controller.

No.	Work	Checks/remarks
1	Remove the 4 screws [1] that come with the rear cover of the host machine, and remove the face cover [2]. If you are installing a Copy Data Controller-A1 to a 230V machine, go to step 4).	 F04-601-01

No.	Work	Checks/remarks
2	Connect the connector J525 [1] of the host machine with the cable [3] of the controller.	 F04-601-02
3	Mount the controller [2] with 4 screws [1].	 F04-601-03

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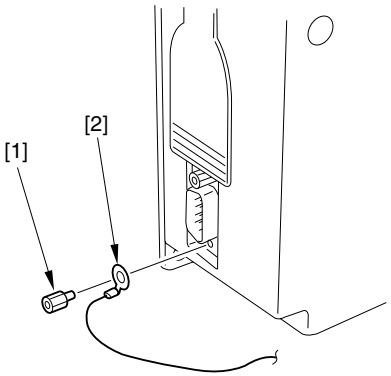
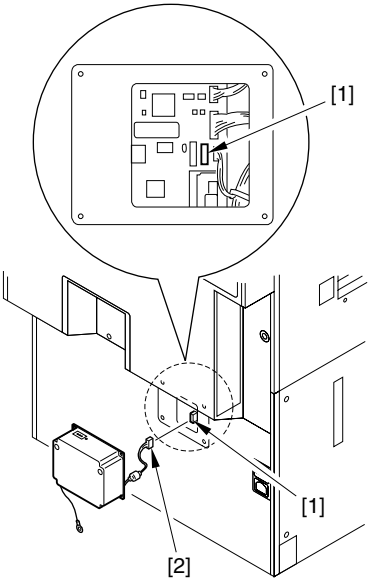
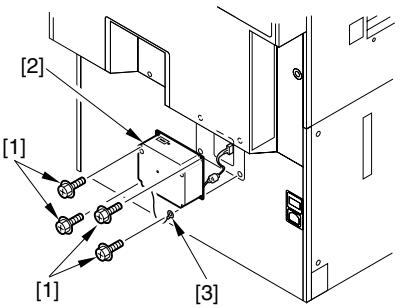
No.	Work	Checks/remarks
4	[When Installing a Copy Data Controller-A1 to a 230V Model] Remove the connector fixing screw (bottom) [1]. Bend the terminal of the grounding wire [2] that comes with the machine to the outside, and mount it using a connector fixing screw [1].	 F04-601-04
5	Connect the connector J525 [1] of the host machine and the cable [3] of the controller.	 F04-601-05

No.	Work	Checks/remarks
6	Mount the controller [2] using 4 screws. At this time, be sure to tighten the other terminal [3] of the grounding wire using the right lower screw.	 F04-601-06

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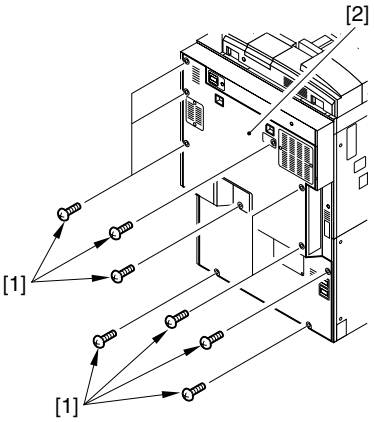
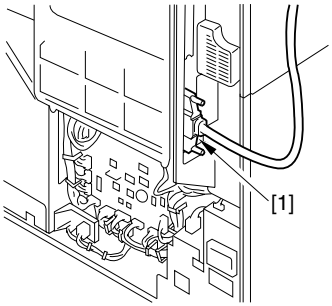
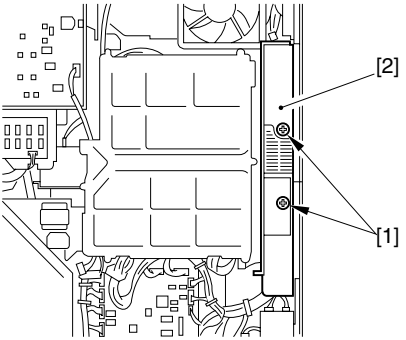
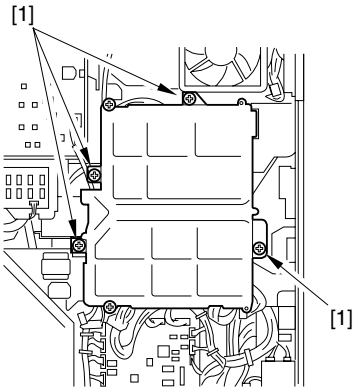
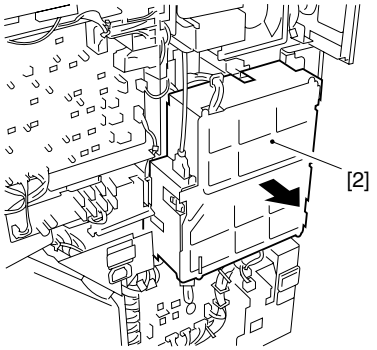
7 Installing the Network LIPS Printer Kit -B1

7.1 Installing the Network LIPS Printer Kit-B1

To use this Kit, the version of the host's system software must be 2.20 or later. Start service mode, and make the following selections to check its version: COPIER>DISPLAY>VERSION>MN-CONT. If the indication is not 2.20 or later, be sure to download an appropriate version.

No.	Work	Checks/remarks
1	Turn off the copier's power switch, and disconnect the power plug.	
2	Remove the 10 screws [1], and detach the rear cover [2].	 F04-701-01
3	Remove the interface cable [1].	 F04-701-02

No.	Work	Checks/remarks
4	Remove the 2 screws [1], and detach the system connector cover [2].	 F04-701-03
5	Remove the 4 screws [1], and slide out the main controller box [2] to the front.	 F04-701-04  F04-701-05

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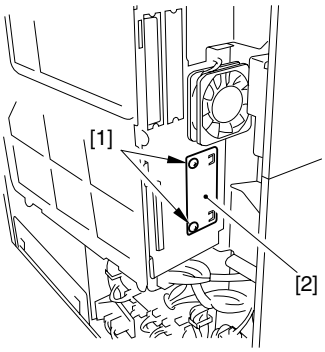
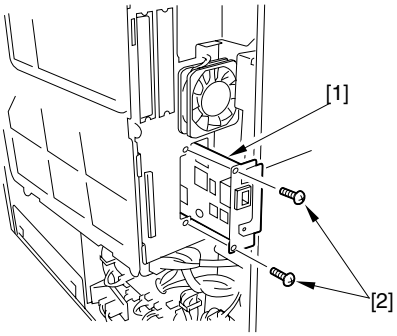
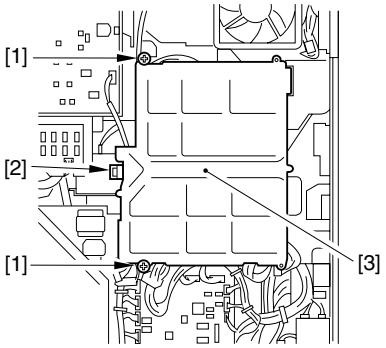
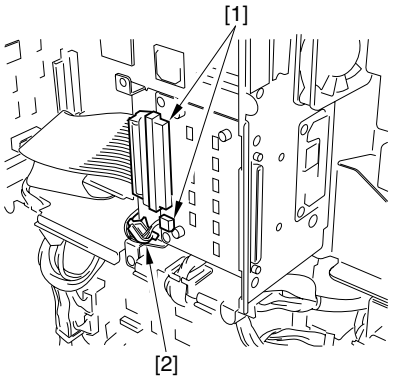
No.	Work	Checks/remarks
6	Remove the 2 screws [1], and detach the face plate.	 F04-701-06
7	Secure the network PCB [1] in place using the 2 screws [2] used to fix the face plate in place. Check to make sure that the connector has been fully inserted.	 F04-701-07
8	Push in the main controller box that has been slid out in step 5, and secure it in place using 4 screws.	

No.	Work	Checks/remarks
9	Remove the 2 screws [1], and free the hook [2]; then, detach the main controller cover [3].	 F04-701-08
10	Remove the 2 connectors [1], and free the wire saddle [2].	 F04-701-09

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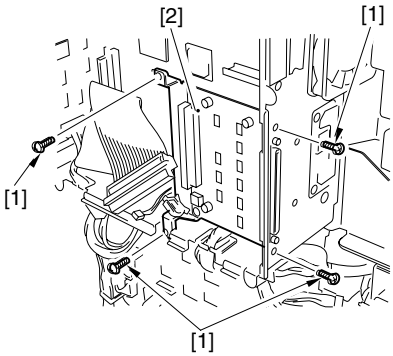
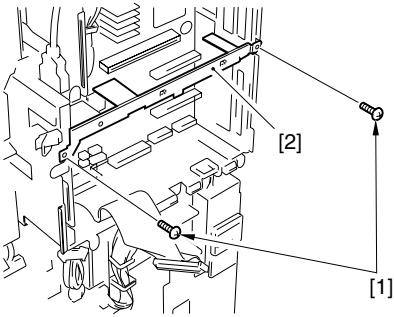
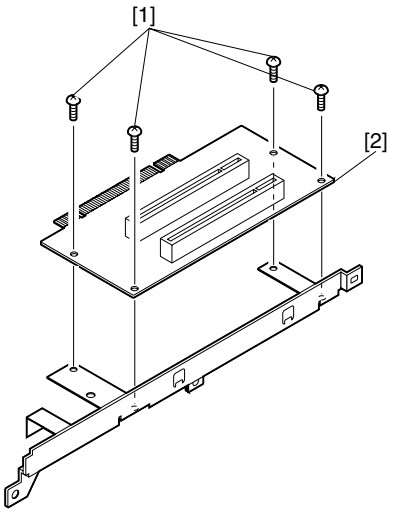
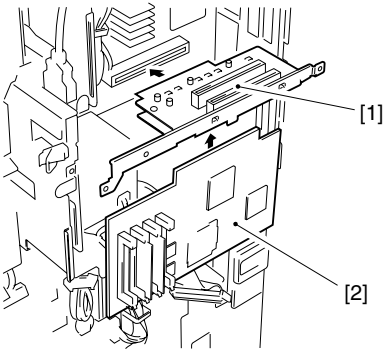
No.	Work	Checks/remarks
11	Remove the 4 screws [1], and detach the differential PCB [2].	 F04-701-10
12	Remove the 2 screws [1], and detach the plate [2].	 F04-701-11

No.	Work	Checks/remarks
13	Mount the relay PCB [2] to the plate removed in step 12 using 4 screw [1].	 F04-701-12
14	Fit the LIPS PCB [2] to the relay PCB [1], and fit the relay PCB in the main controller. Throughout the mounting work, try to hold the relay PCB by its frame.	 F04-701-13

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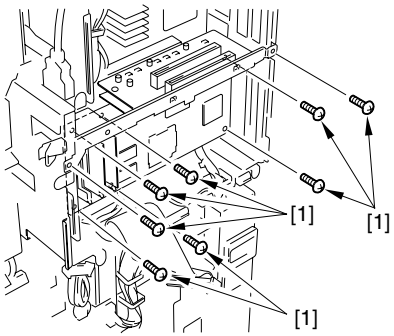
No.	Work	Checks/remarks
15	Using 8 screws [1], mount the relay PCB and the LIPS PCB.	 F04-701-14
16	Mount the differential PCB removed in step 11 using 4 screws, and connect the 2 connectors disconnected in step 10); then, fix the connector harness in place using the wire saddle.	
17	Mount the main controller cover removed in step 9) (Be sure that both screws are on the hook side).	
18	Mount the system connector cover removed in step 4).	
19	Mount the interface cable removed in step 3).	
20	Mount the rear cover removed in step 2).	
21	Connect the copier's power plug, and turn on the main power switch.	
22	Start user mode.	
23	Change the setting of the following from 'no' to 'yes': user mode>printer settings> settings>auto switch-over>LPS.	
24	Change the setting of the following from 'no' to 'yes': user mode>printer settings> settings>auto switch-over>N201.	
25	Change the setting of the following from 'no' to 'yes': user mode>printer settings> settings>auto switch-over>ESC/P.	
26	Connect to the network (See 3.13 "Connecting to the Network").	

CHAPTER 5

MAINTENANCE AND INSPECTION

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1 Periodically Replaced Parts

Some parts of the machine must be replaced on a periodical basis to maintain a specific level of machine performance; replace them as indicated (Once they fail, the machine performance will be appreciably affected).

If possible, plan the replacement so that it will coincide with a periodical servicing visit for the machine.

As of August 2001

No.	Parts name	Parts No.	Q'ty	Life (approx.; copies)	Remarks
1	Pre-transfer/Transfer/Separation charging wire	FB4-3687	AR	250,000*	
	Primary charging wire			500,000*	
2	Primary charging grid wire	FY1-0883	AR	500,000	
3	Thermistor	FG6-7748	1	500,000	
4	Sub thermistor	FH7-7464	1	500,000	
5	Thermal switch unit	FG6-7745	1	1,000,000	
6	Primary charging wire cleaner 1	FF5-6883	2	500,000	
7	Primary charging wire cleaner 2	FF5-6884	2	500,000	
8	Transfer charging wire cleaner 1	FF5-6883	1	500,000	
9	Transfer charging wire cleaner 2	FF5-6884	1	500,000	
10	Separation charging wire cleaner	FF5-7891	1	500,000	
11	Pre-transfer charging wire cleaner 6	FF5-9552	1	500,000	
12	Ozone filter for FM2	FB6-0777	1	1,000,000	
13	Ozone filter for FM8	FB6-0776	1	1,000,000	
14	Dust-proofing filter for FM1	FF5-7663	1	1,000,000	
15	Dust-proofing filter for FM3	FF5-7662	1	1,000,000	
16	Dust-proofing filter for FM4	FF5-9547	1	1,000,000	iR8500 only.
17	Dust-proofing filter for FM10	FF5-7664	1	1,000,000	
18	Dust-proofing filter for FM14	FF5-7663	1	1,000,000	

Note: The above values are estimates only, and are subject to change based on future data.

* Old type (gold-plated) must not be used.
  After replacing the charging wire, be sure to execute wire cleaning in service mode: COPIER>FUNCTION>CLEANING>WIRE-CLN.
* After servicing the charging assembly, mount it while moving the cleaning holder to the fort by hand.

T05-100-01

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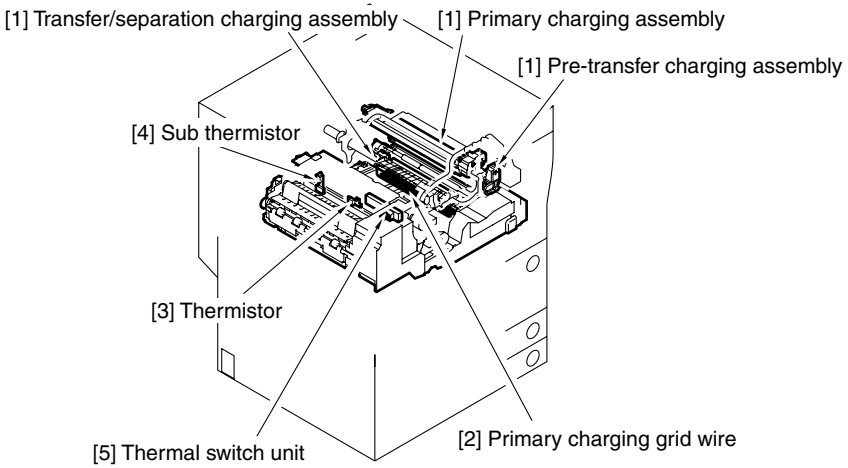

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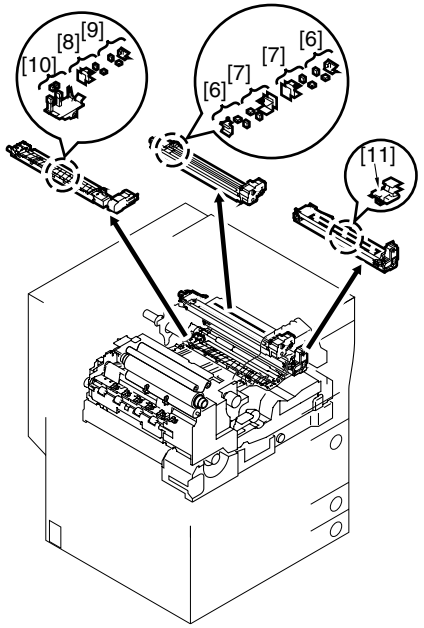

[6] Primary charging wire cleaner 1
[7] Primary charging wire cleaner 2
[8] Transfer charging wire cleaner 1
[9] Transfer charging wire cleaner 2
[10] Separation charging wire cleaner
[11] Pre-transfer charging wire cleaner

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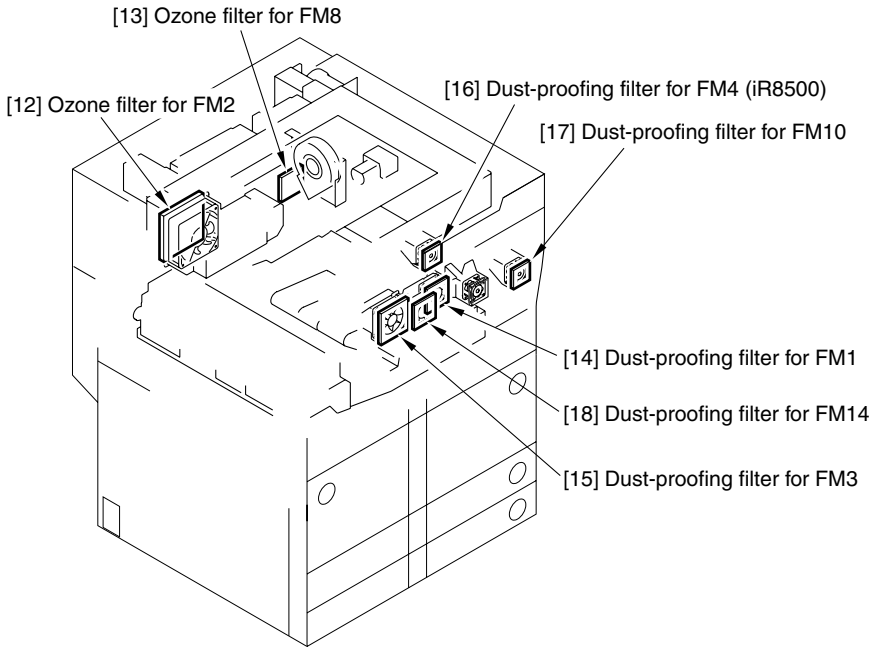
[13] Ozone filter for FM8
[12] Ozone filter for FM2
[16] Dust-proofing filter for FM4 (iR8500)
[17] Dust-proofing filter for FM10
[14] Dust-proofing filter for FM1
[18] Dust-proofing filter for FM14
[15] Dust-proofing filter for FM3

F05-100-03

2 Guide to Durables

Some parts of the machine may require replacement once or more during the period of machine warranty because of wear or damage. Replace them as needed by referring to the following table.

2.1 Copier

As of August 2001

No.	Parts name	Parts No.	Q'ty	Life (pages)	Remarks
1	Scanning lamp (iR8500)	FH7-3347	1	200 hr or 150,000 activations	Check in service mode. • Length of Activation COPIER>COUNTER> DRBL-1>SCN-LMP
1A	Scanning lamp (iR7200)	FG6-4864 (208 V) FG6-5943 (100/230 V)		3,000,000 scanning	• Number of Activations COPIER>DISPLAY>MISC> SCAN-LMP
2	Developing cylinder	FB5-3111	1	1,000,000	
3	Developing assembly member	FS5-6579	2	1,000,000	
4	Cleaner separation claw	FB4-8018	3	250,000	
5	Cleaning blade	FB6-2720	1	1,000,000	Use both edges; 50,000 pages each. Apply toner upon replacement.
6	Primary charging assembly	FG6-7313	1	1,000,000	
7	Transfer/separation charging assembly	FG6-7740	1	1,000,000	
8	Pre-transfer charging assembly	FG9-3863	1	1,000,000	Use the LED unit (FG6-7185) for a second time.
9	Pre-transfer charging assembly scarper	FF6-1031	1	500,000	

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No.	Parts name	Parts No.	Q'ty	Life (pages)	Remarks
10	Upper fixing roller	FB5-6930	1	500,000	
11	Lower fixing roller	FB5-6952	1	500,000	
12	Fixing web	FY1-1157	1	500,000	Replace simultaneously with the upper fixing roller.
13	Insulating bush (front/rear)	FB5-6934	2	500,000	
14	Fixing roller bearing	XG9-0421	2	1,000,000	
15	Fixing pressure roller bearing	XG9-0447	2	1,000,000	
16	Delivery upper separation claw	FB5-8727	6	500,000	
17	Delivery lower separation claw	FA2-9037	2	1,000,000	
18	Pickup roller (deck, cassette)	FF5-7829 (front) FF5-7830 (rear)	8	250,000	Actual Number of Pages Made (2 pc. for each) The actual number of pages made may be checked in service mode.* Left deck: LD-PU-RL Right deck: RD-PU-RL Cassette 3: C3-PU-RL Cassette 4: C4-PU-RL
19	Feeding roller (deck, cassette)	FB4-2034	8	250,000	Actual Number of Pages Made (2 pc. for each) The actual number of pagesm made may be checked in service mode.* Left deck: LD-FD-RL Right deck: RD-FD-RL Cassette 3: C3-FD-RL Cassette 4: C4-FD-RL

*COPIER>COUNTER>DRBL-1.

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No.	Parts name	Parts No.	Q'ty	Life (pages)	Remarks
20	Separation roller (deck, cassette)	FB2-7777	4	250,000	Actual Number of Pages Made (1 pc. for each) The actual number of pages made may be checked in service mode.* Left deck: LD-SP-RL Right deck: RD-SP-RL Cassette 3: C3-SP-RL Cassette 4: C4-SP-RL
21	Pickup roller (manual feed tray)	FF9-1763 (front) FF9-1764 (rear)	2	120,000	Actual Number of Pages Made The actual number of pages made may be checked in service mode.* M-PU-RL
22	Feeding roller (manual feed tray)	FB4-2035	2	120,000	Actual Number of Pages Made The actual number of pages made may be checked in service mode.* M-FD-RL
23	Separation roller (manual feed tray)	FB2-7545	1	120,000	Actual Number of Pages Made The actual number of pages made may be checked in service mode.* M-SP-RL

*COPIER>COUNTER>DRBL-1.

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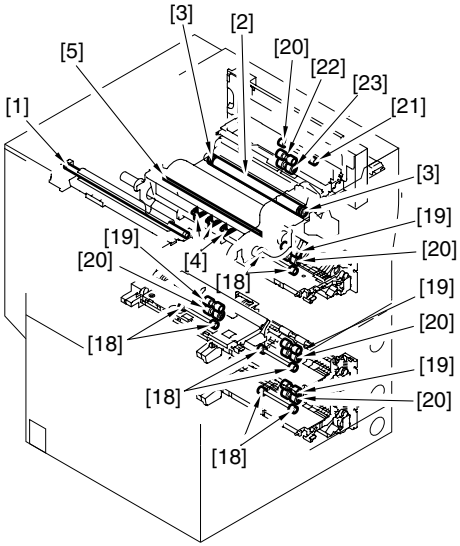

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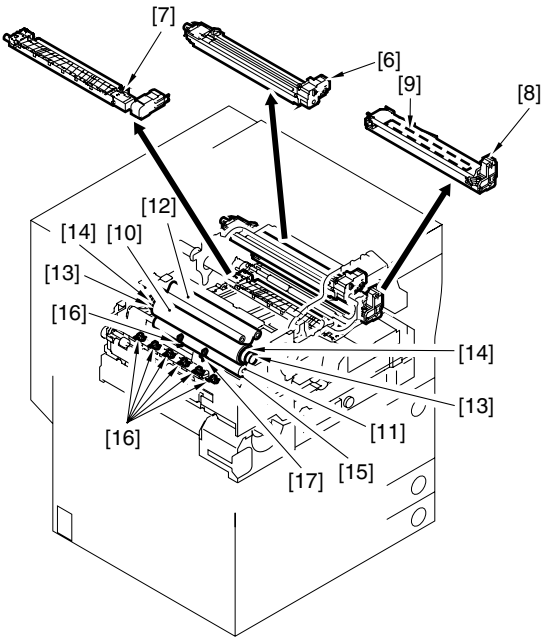


F05-201-02

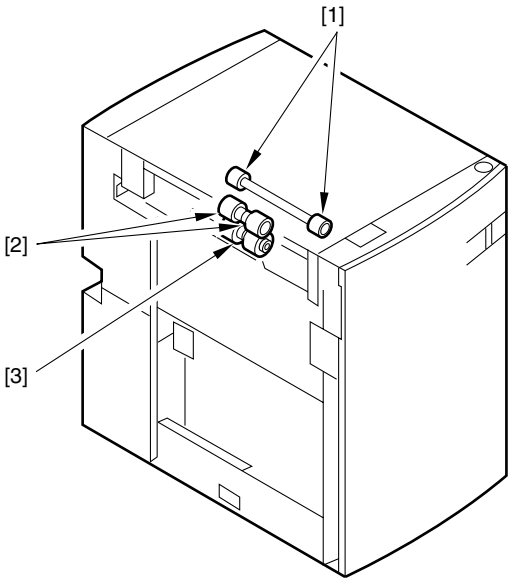
2.2 Side Paper Deck

As of August 2001

No.	Parts name	Parts No.	Q'ty	Life (pages)	Remarks
1	Side paper deck pickup roller	FF5-7829 (front) FF5-7830 (rear)	2	250,000	The actual number of pages made may be checked in service mode.* PD-UP-RL
2	Side paper deck feeding roller	FF5-7541	2	250,000	The actual number of pages made may be checked in service mode.* PD-FD-RL
3	Side paper deck separation roller	FB2-7777-020	1	250,000	The actual number of pages made may be checked in service mode.* PD-SP-RL

*COPIER>COUNTER>DRBL-2.

T05-202-01



F05-202-01

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3 Scheduled Servicing Work

1. As a rule, perform scheduled servicing work every 250,000 pages.
2. Before setting out for a scheduled visit, check with the Service Book, and take parts that are likely to need replacement.
3. Whenever you have cleaned a charging wire, make sure it is completely dry before mounting it back to the machine.
4. If the power plug is left connected for a long time in an area subject to excessive dust, humidity, or smoke (containing oil vapor), an insulation fault and, ultimately, a fire can occur (owing to the build-up of moist dust).
   Be sure to disconnect the power plug on a periodical basis, and wipe the area and the power plug clean with a dry cloth.

As of August 2001

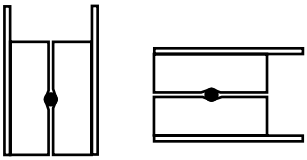
No.	Step	Checks	Remarks
1	Meet the person in charge.	Check the general condition.	
2	Take notes of the counter readings.	Check the faulty copies:	
3	Make test copies.	a. Image for density	Standard (single-sided)
		b. White background for soiling	Leading edge: 4.0 +1.5/-1.0 mm
		c. Characters for clarity	Left/right: 2.5 ±1.5 mm
		d. Margin along leading edge	Trailing edge: 2.5 ±1.5 mm
		e. Fixing, registration, and back (for soiling)	
4	Clean the charging assemblies: • Charging wire (primary, pre-transfer, transfer/separation) • Grid wire (primary charging assembly) • Shielding plate (each charging assembly) • Roller electrode		Dry wipe with lint-free paper; then, clean with alcohol.

T05-300-01

Points to Note When Cleaning/Replacing the Charging Wire or Replacing the Charging Wire Cleaner

At the end of the following, always check to make sure that the charging wire is in the middle of the charging wire cleaner; otherwise, image faults can occur:

a. If you have cleaned the charging wire.
b. If you have replaced the charging wire.
c. If you have moved the charging wire cleaner by hand.
d. If you have replaced the charging wire.



Correct

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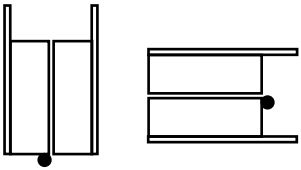

Wrong

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No.	Step	Checks	Remarks
5	Clean the optical path: • No. 1/2/3 mirror • Dust-proofing glass • Contact glass for stream reading (iR7200) • Scanner reflecting plate • Standard white plate		Use a blower brush; if the dirt is appreciable, use alcohol.
6	Clean the scanner: • Scanner cable • Scanner rail	Check the wire for tension. Clean the slide portion, and apply silicone oil (FY9-6011).	Check the scanner cable only at the first 250,000 copies.
7	Clean the waste toner collection case.	If more than 50% of the waste toner is full, dispose of the waste toner in a plastic bag; or, replace the waste toner collection case.	
8	Clean the filters: • Ozone filter • Dust-proofing filter		Remove the dust collecting on the filter surface.
9	Clean the developing assembly: • Developing assembly member	Clean the developing assembly member.	
10	Clean the pickup/feeding assembly: • Transfer guide (upper/lower) plate • Registration roller (upper/lower) • Feeding belt • Feeding rollers		
11	Clean the fixing/delivery assembly: • Separation claw (upper/lower) • Feeding rollers • Inlet guide • Web (check) • Web oil pan • Thermistor • Sub thermistor • Thermal switch		

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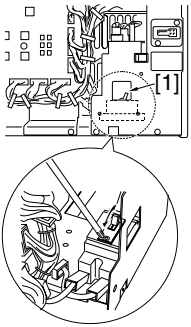
No.	Step	Checks	Remarks
12	Clean the cleaner assembly: • Side scarper		
13	Clean the duplexing unit: • Duplex horizontal registration sensor		
14	Clean the copyboard glass.		
15	Make test copies.		
16	Make sample copies.		
17	Press the leakage breaker test switch to make sure that the breaker operates normally. Thereafter, turn off the power switch, and shift the lever to ON position; then, turn on the power switch. Check to make sure that the grounding is correct; otherwise, leakage may not trigger the leakage breaker.	Press the test switch while the power switch is ON and the lever [1] of the leakage breaker is at ON; if normal, the lever should shift to OFF position to cut off the power (Pay attention to the orientation whenever replacing the breaker. If you have replaced the breaker, be sure to check its operation).	 F05-300-03
18	Put the sample copies in order, and clean up the area around the machine.		
19	Record the latest counter readings.		
20	Fill out the service Book, and report to the person in charge.	Record the results of the check made on the leakage breaker in the Service Book.	

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4 Scheduled Service Chart

Do not use solvents other than those indicated herein.

4.1 Copier

△: Clean ●: Replace ×: Lubricate □: Adjust ◎: Check

Unit	Location	Interval: upon installation	every 250,000	every 500,000	every 750,000	every 1,000,000	Remarks
Externals and controls	Copyboard glass		△				
	Ozone filter (FM2, FM8)		△			●	Remove the dust from the filter. See F05-401-01.
	Dust-proofing filer (FM1, FM3, FM4) (FM10, FM14) Air filter		△			●	Remove the dust from the filter surface. See F05-401-01.
Scanner	Scanning cable		◎□				Inspect only for the first 250,000 pages.
	Scanner rail		△×				Silicone oil S-20 (FY9-6011)
Optical path	No. 1 through No. 3 mirrors		△				
	Dust-proofing glass		△				
	Scanner reflecting plate		△				
	Standard white plate		△				
	Pre-transfer exposure LED	△	△				
Charging assembly	Charging wire (primary)	△		●			
	Charging wire (pre-transfer, transfer/separation)	△	●				
	Grid wire (primary)	△	△	●			
	Charging assembly shielding plate	△	△				
	Electrode	△	△				

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Unit	Location	Interval: upon installation	Interval: every 250,000	Interval: every 500,000	Interval: every 750,000	Interval: every 1,000,000	Remarks
Photosensitive drum	Photosensitive drum			△			Use alcohol (C-17) + drum cleaning powder (CK-0429). For the work procedure, see 4.3.2 "Work Procedure 2."
	Electrode (stop ring for drum heater)					△×	Clean the following with alcohol; then, apply FY9-6008 on the charge collecting brush: • Electrode of slip ring • Wall surface of protrusion on electrode • Charge collecting brush
Developing assembly	Developing assembly cylinder	◎					
	Developing assembly roller		△				
Cleaner	Side scraper		△				For the work, see 4.3.1 "Work Procedure 1."
	Toner pan (rear/front)		△				For the work, see 4.3.1 "Work Procedure 1."
	Magnet roller			△			For the work, see 4.3.2 "Work Procedure 2."
Fixing assembly	Inlet guide		△				
	Web	◎					
	Oil pan			△			
	Thermistor		△	●			
	Sub thermistor		△	●			
	Thermal switch unit					●	

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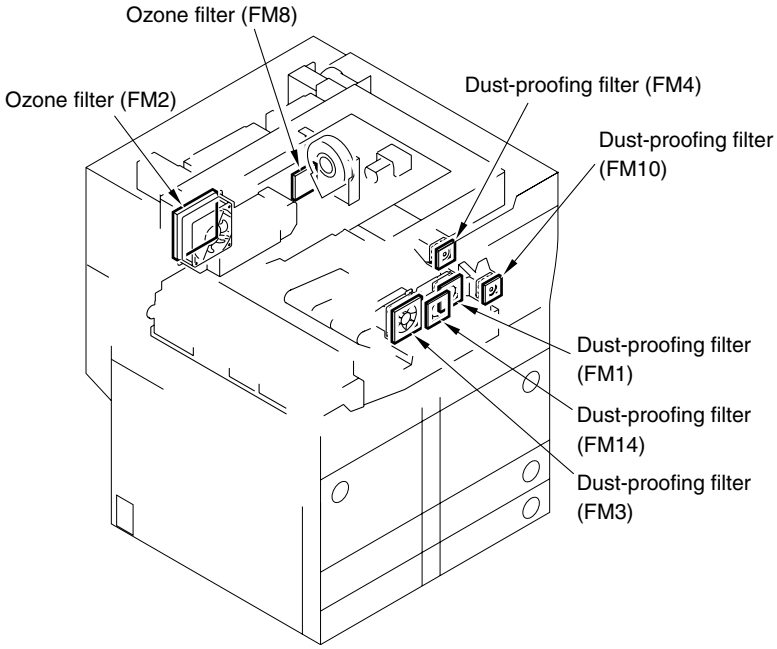
Unit	Location	Interval					Remarks
		upon instal-lation	every 250,000	every 500,000	every 750,000	every 1,000,000	
Delivery assembly	Separation law (upper/lower)		△				
Waste toner collection assembly	Waste toner box		◎				Check/remove.
Pickup/ feeding assembly	Transfer guide		△				
	Registration roller (upper/ lower)		△				
	Feeding belt		△				
	Feeding rollers		△				
Duplexing assembly	Duplex horizontal registration sensor		△				

T05-401-03



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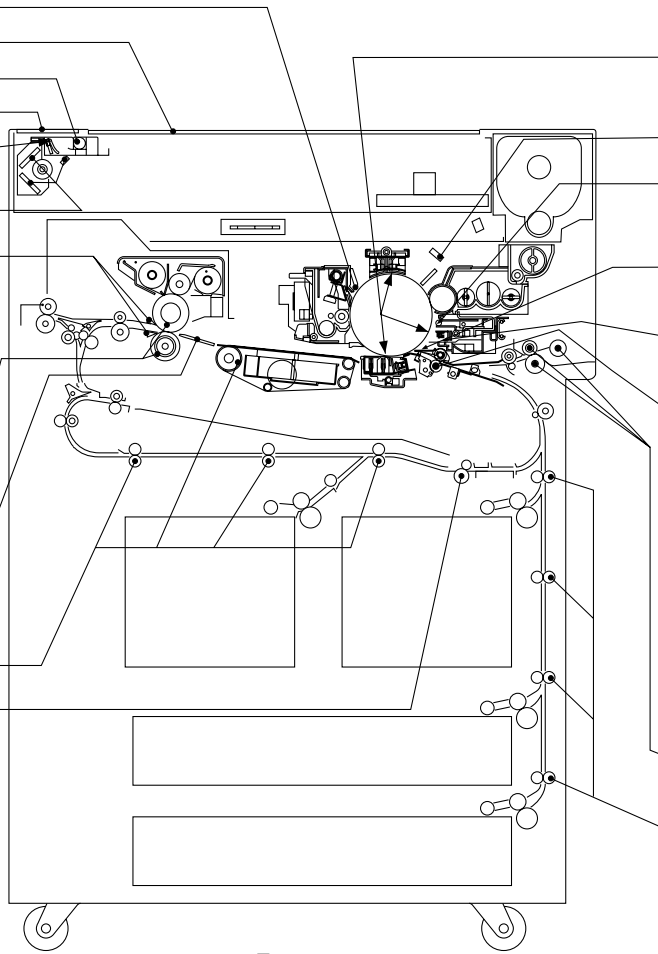
4.2 Point to Note on Scheduled Servicing

Notes:
- Make thorough checks to be sure that the block (front, rear) is free of melting, thermal deformation, cracking, or yellowing caused by leakage. If a fault is found, replace the part immediately.
- Make checks and clean as far as the inside of the block (front, rear).
- Do not use a cloth or the like carrying metal powder.
- Do not use a wet/moist cloth unless specifically indicated. Use lint-free paper to dry wipe, and then use alcohol. After using alcohol, check to make sure that the part has dried completely.
- Provide scheduled servicing and replacement at the specified intervals.

Item	Tool/agent	Remarks
Pre-exposure lamp	Alcohol	Cleaning
Copyboard glass	Alcohol	Cleaning
Scanning lamp	Lint-free paper	Dry wiping
Scanning lamp	Lint-free paper	Dry wiping
Reflecting plate	Blower brush	Cleaning
No.1 through No.3 mirrors	Blower brush or lint-free paper	Using a blower brush; if dirt is excessive, using lint-free paper

Item	Tool/agent	Remarks
Separation claw	Solvent ad lint-free paper	Cleaning
Upper roller, Lower roller	Cleaning oil, Lint-free paper	Cleaning
Paper guide	Solvent and lint-feed paper	Cleaning
Feeding assembly	Moist cloth*	Cleaning
Feeding assembly	Lint-free paper	Cleaning
Re-pickup assembly, Reversing roller	Alcohol, Lint-free paper	Cleaning
Re-pickup assembly, Pickup roller, Registration roller	Alcohol, Lint-free paper	Cleaning

*Be sure no droplet of water remains.



F05-402-01

Item	Tool/agent	Remarks
· Primary charging assembly, · Transfer/separation charging assembly, · Pre-transfer charging assembly	Alcohol, lint-free paper	Dry wiping; then, cleaning with lint-free paper moistened with alcohol
Dust-proofing glass	Lint-free paper	Cleaning
Dust-proofing roller		Removing toner collecting around the dust-proofing roller
Transfer guide (upper/lower)	Alcohol, lint-free paper	Dry wiping; then, cleaning with lint-free paper moistened with alcohol
Pre-transfer charging lamp	Alcohol, lint-free paper	Dry wiping; then, cleaning with lint-free paper moistened with alcohol
Developing assembly base	Moist cloth*	Cleaning
Registration roller	Alcohol, lint-free paper	Cleaning

*Be sure no droplet of water remains.

Item	Tool/agent	Remarks
Manual feed tray, Pickup roller, Feeding roller	Alcohol, lint-free paper	Cleaning
Vertical path roller	Alcohol, lint-free paper	Cleaning

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4.3 Work Procedure

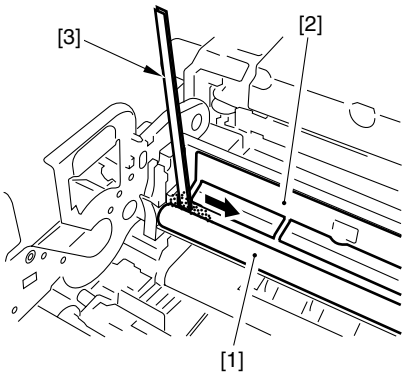
Perform the steps shown for scheduled maintenance work around the drum:

4.3.1 Work Procedure 1

a. Cleaning the Side Scraper
b. Cleaning the Toner Pan

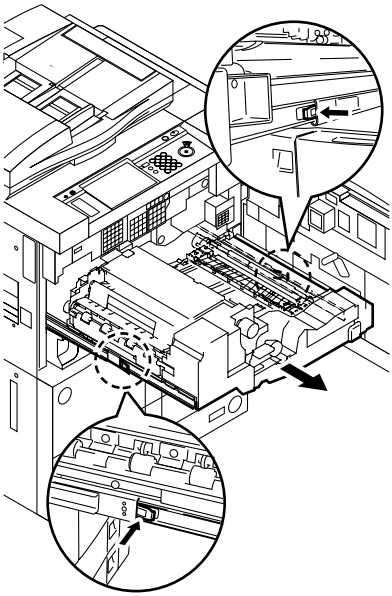
During the work, take care not to rotate the magnet roller drive assembly; otherwise, waste toner may fall out of the cleaner assembly.

1) Slide out the process unit (Be sure to place the drum protection sheet over the fixing/feeding unit).
2) Take out the photosensitive drum.
3) Remove the magnet blade assembly.
4) Using a piece of paper [3] or the like, move the waste toner collecting at the front of the magnet roller [1] and the scraper [2] toward the rear of the feedscrew.



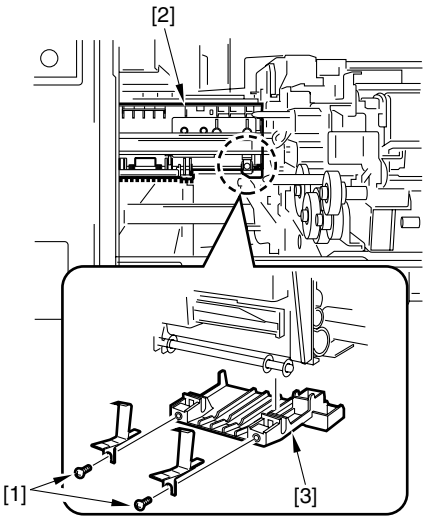
F05-403-01

5) Release the lock of the slide rail, and slide out the fixing/feeding unit farther toward the front.



F05-403-02

6) Remove the two screws [1] of the cleaner assembly [2] one by one, and detach the toner pan (front, rear); then, remove the toner from the toner pan [3].



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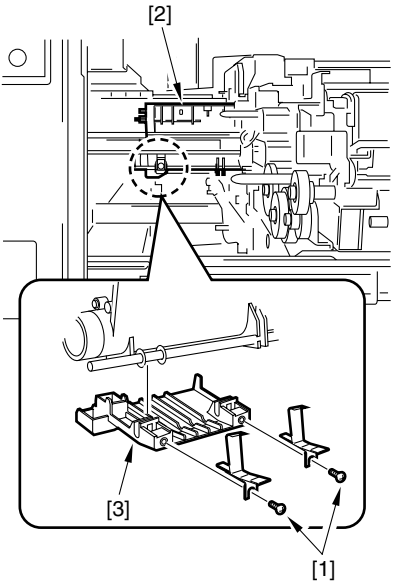


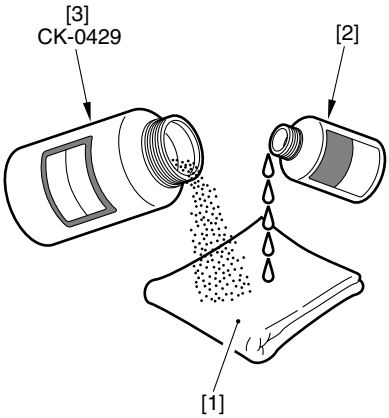
F05-403-04

4.3.2 Work Procedure 2

a. Cleaning the Photosensitive Drum
b. Remove the Toner from the Magnet Roller Assembly
c. Turning Over/Replacing the Cleaning Blade

During the work, take care not to rotate the magnet roller drive assembly; otherwise, waste toner may fall out of the center assembly.

1) Slide out the process unit (Be sure to place the drum protective sheet over the fixing/feeding unit).
2) Take out the photosensitive drum.
3) Moisten the lint-free paper [1] with alcohol [2] (5 to 10 cc), and put drum cleaning powder [3] (CK0429; 0.2 to 0.3 g) on the lint-free paper.



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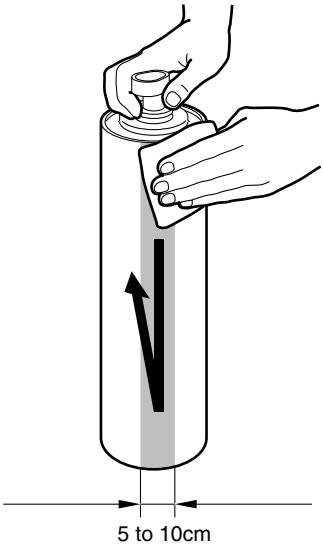
4) While forcing the lint-free paper against the photosensitive drum, move it from the front to the rear and then from the rear to the front to wipe the drum.

- Keep the width of the cleaning movement to 5 to 10 cm.
- For a single area, the lint-free paper may be moved back and forth 15 to 20 times; a little force will not affect the life of the drum.



F05-403-06

5) When the alcohol has completely evaporated, dry wipe the drum with lint-free paper. If the drum has been wiped unevenly, go back to step 4), and clean once again.
6) Rotate the drum for the width of the cleaning movement to 5 to 10 cm, and repeat steps 3) through 5) until you have cleaned the entire surface of the drum.
7) Remove the cleaning blade assembly.

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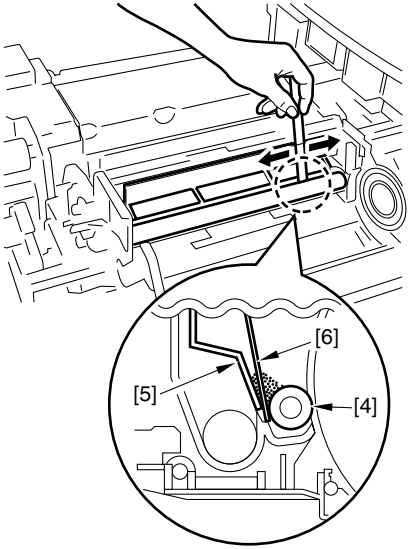
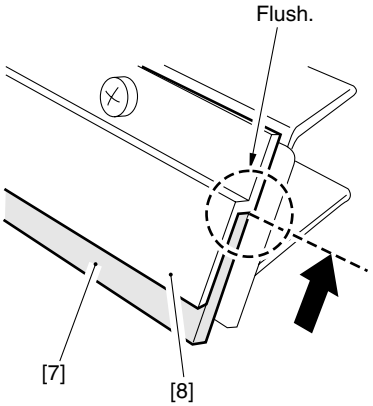
8) Insert a ruler [6] between the magnet roller [4] and the scraper [5], and move it back and forth from the front to the rear and then from the rear to the front to pulverize lumps of waste toner.
9) Turn the magnetic roller [4] to make sure that the coating of waste toner is even.
   If it is as follows, repeat step 8):
   • The coating is uneven in the form of lines.
   • The coating has dents in parts.
   • The coating has clumps of toner.



F05-403-07

10) Remove the cleaning blade from the cleaning blade assembly.
11) Butt the turned or replaced cleaning blade [7] against the rear of the blade retaining plate [8] while keeping the edge flush.

When butting the blade, be sure to use your fingers to keep it firmly in contact.



F05-403-08

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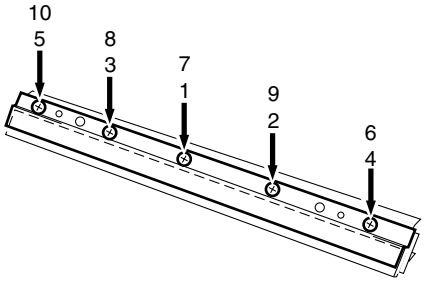
12) Tighten the screws on the blade retaining plate in the sequence indicated.

• From 1 to 5, tighten temporarily.

While keeping the blade down with the plate, tighten the screws temporarily.

• From 6 to 10, tighten fully.

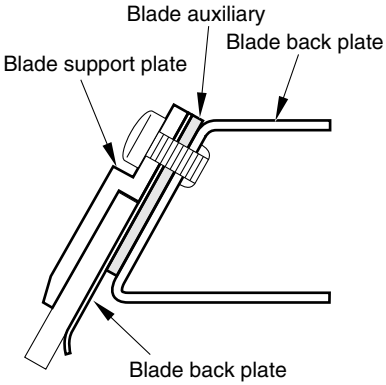


F05-403-09

13) Apply toner in the area of the cleaning blade that will come into contact with the photosensitive drum; then, mount the blade.

When mounting the cleaning blade, be sure to put the blade auxiliary plate between the blade support plate and the blade back plate.

After mounting the cleaning blade, turn the drum; if toner slides off the cleaning blade as a result, repeat the foregoing step. If the problem is not corrected, replace the cleaning blade.



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CHAPTER 6

TROUBLESHOOTING

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1 Guide to the Troubleshooting Tables

The troubleshooting tables used in this chapter are based on commonly found troubleshooting flow charts; study the following for an idea of how to use the tables:

EX: The AC power is absent.

Power plug	**1) Is the power plug connected?** NO: Connect the plug.
Covers	**2) Is the front cover closed properly?** NO: Close the cover.
Main power supply	**3) Is the rated voltage present at the outlet?** NO: The problem is not of the copier. Advise the user.
----------	**4) Is the rated voltage present between J1-1 and J1-2? (J1 is found near the power cord base.)** YES: Go to step 6).

Rest omitted.

- To find out the possible cause (faulty part) of a specific problem, see the “Cause” column of the table. In the case of the above, i.e., “absence of AC power,” suspect that the power plug may be disconnected, the front cover may not be closed properly, or the main power supply is absent.
- To find out checks to make and actions to take for a specific problem, make the check indicated under “Checks” and answer the question in terms of “YES” or “NO”; if yes, take the action indicated, otherwise, go to the next step.

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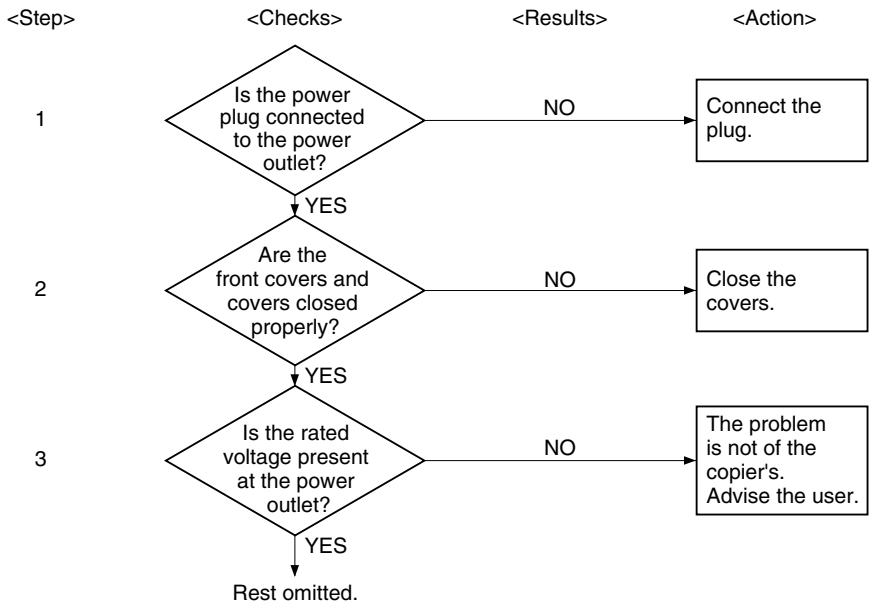

F06-100-01

■ When checking the voltage using a meter, you may encounter an expression like the following: “Measure the voltage between J109-1 (+) and -2 (–) on the DC controller PCB,” the symbol (+) indicating the positive probe of the meter, while the symbol (–) indicatingthe negative probe of the meter.
In the case of the example, you are expected to connect the positive probe to J109-1 and the negative probe to J109-2.

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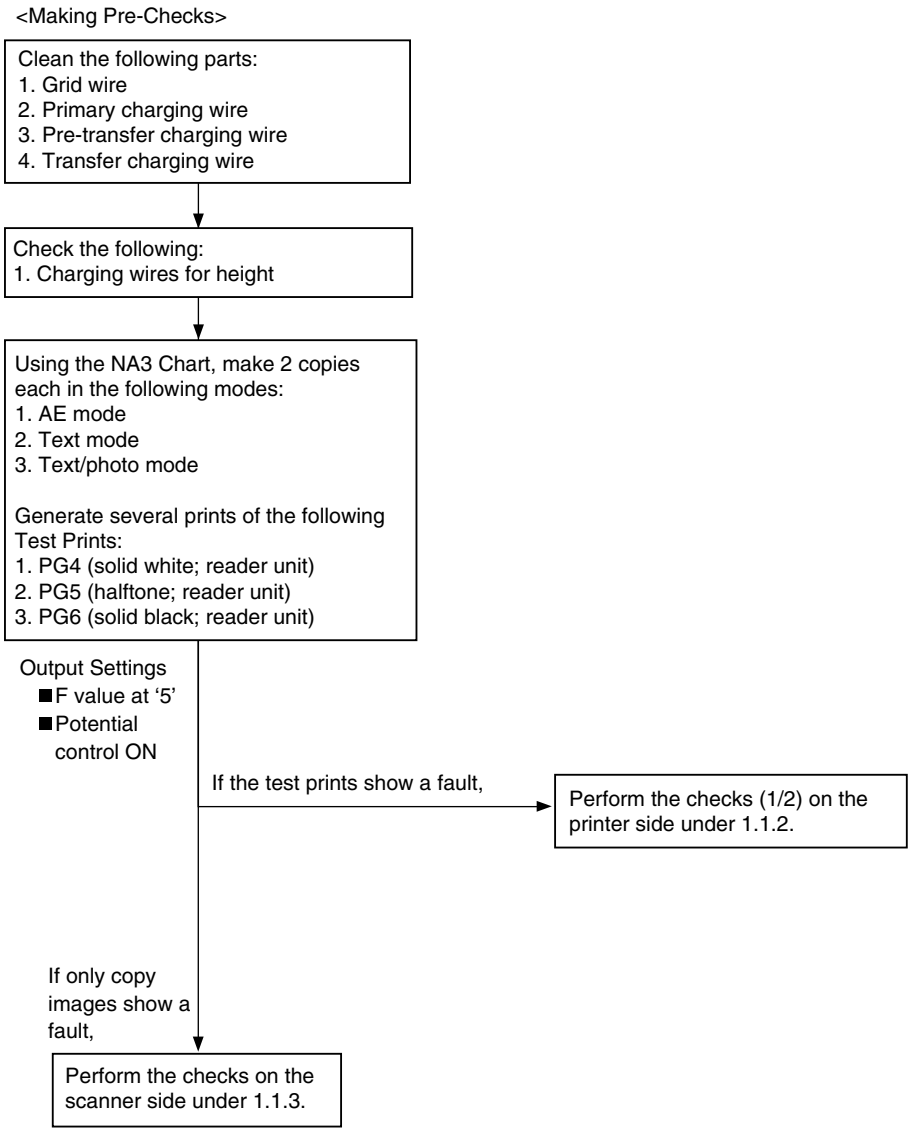
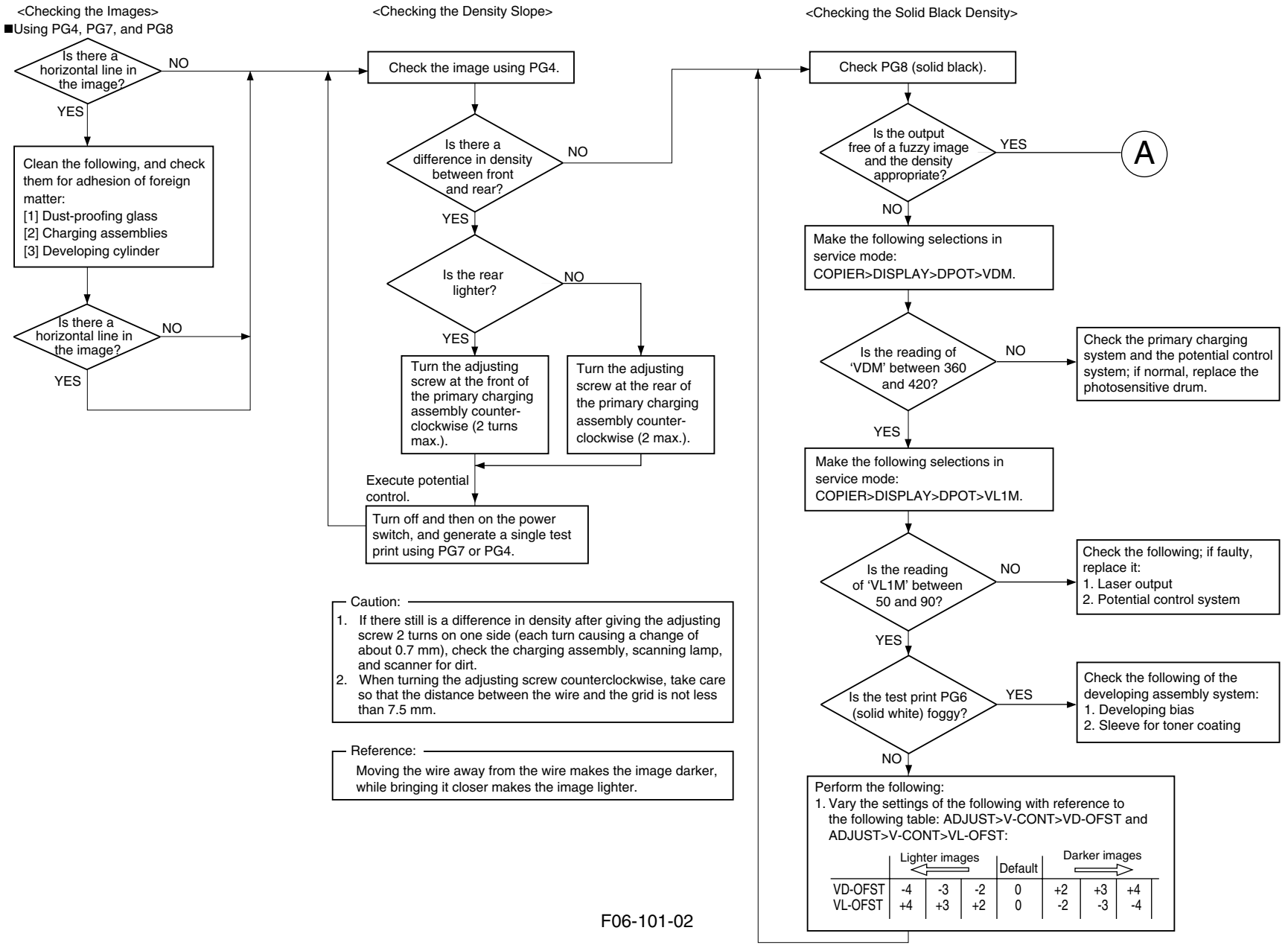
1.1 Image Adjustment Basic Procedure

1.1.1 Making Pre-Checks



F06-101-01

1.1.2 Making Checks on the Printer Side (1/2)



F06-101-02

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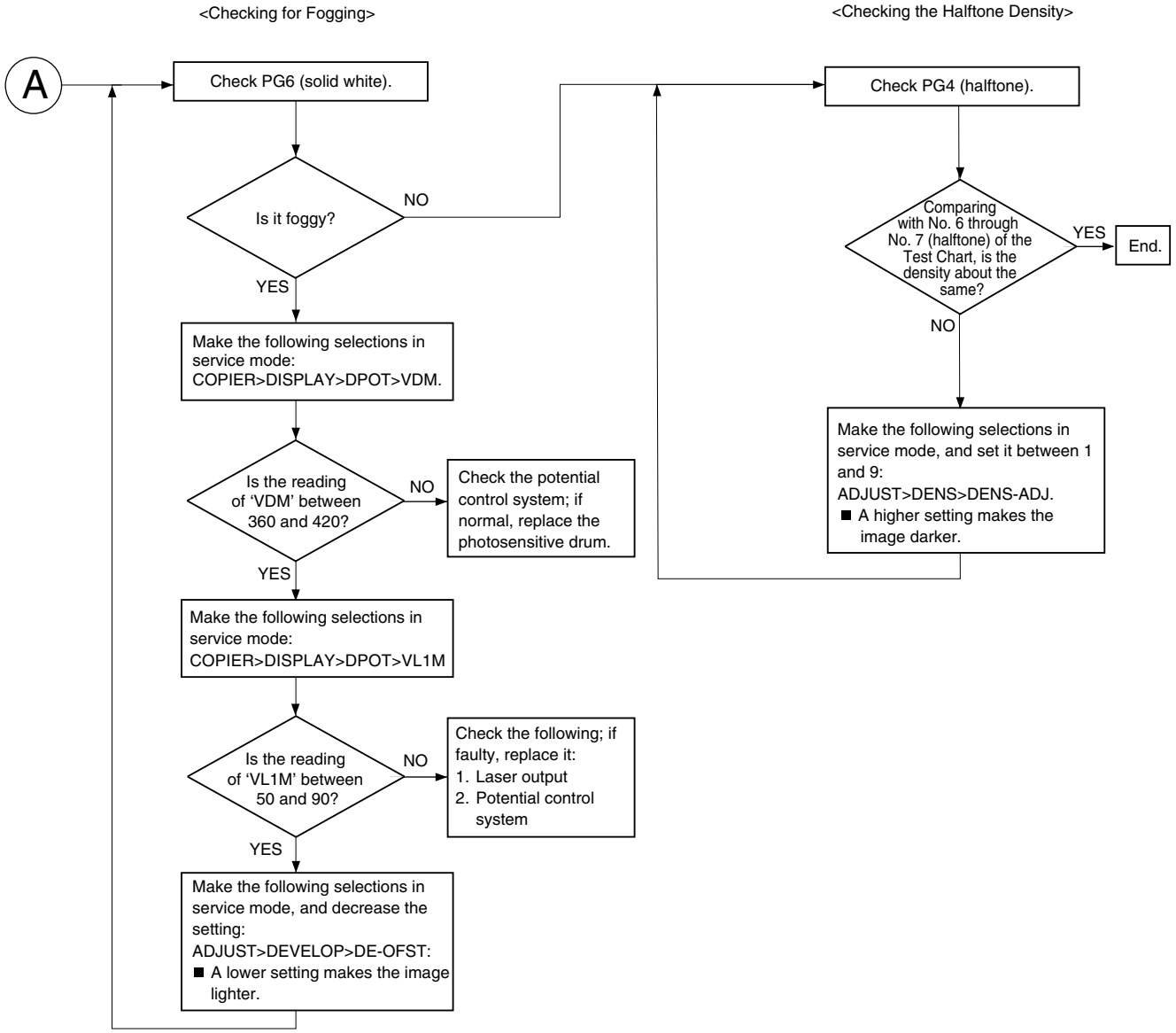
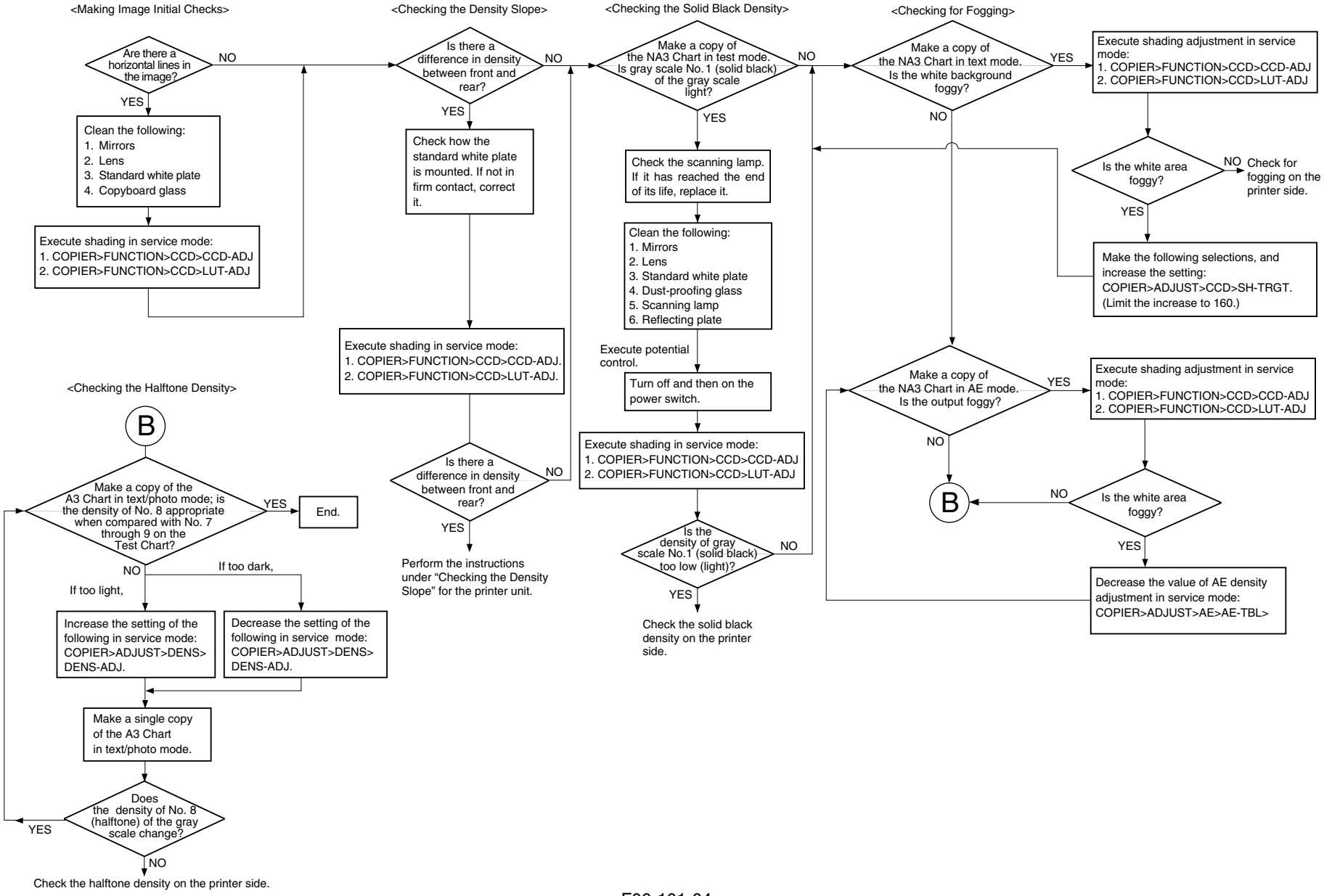
1.1.3 Making Checks on the Printer Side (2/2)



F06-101-03

1.1.4 Making Checks on the Scanner Side (iR8500)



F06-101-04

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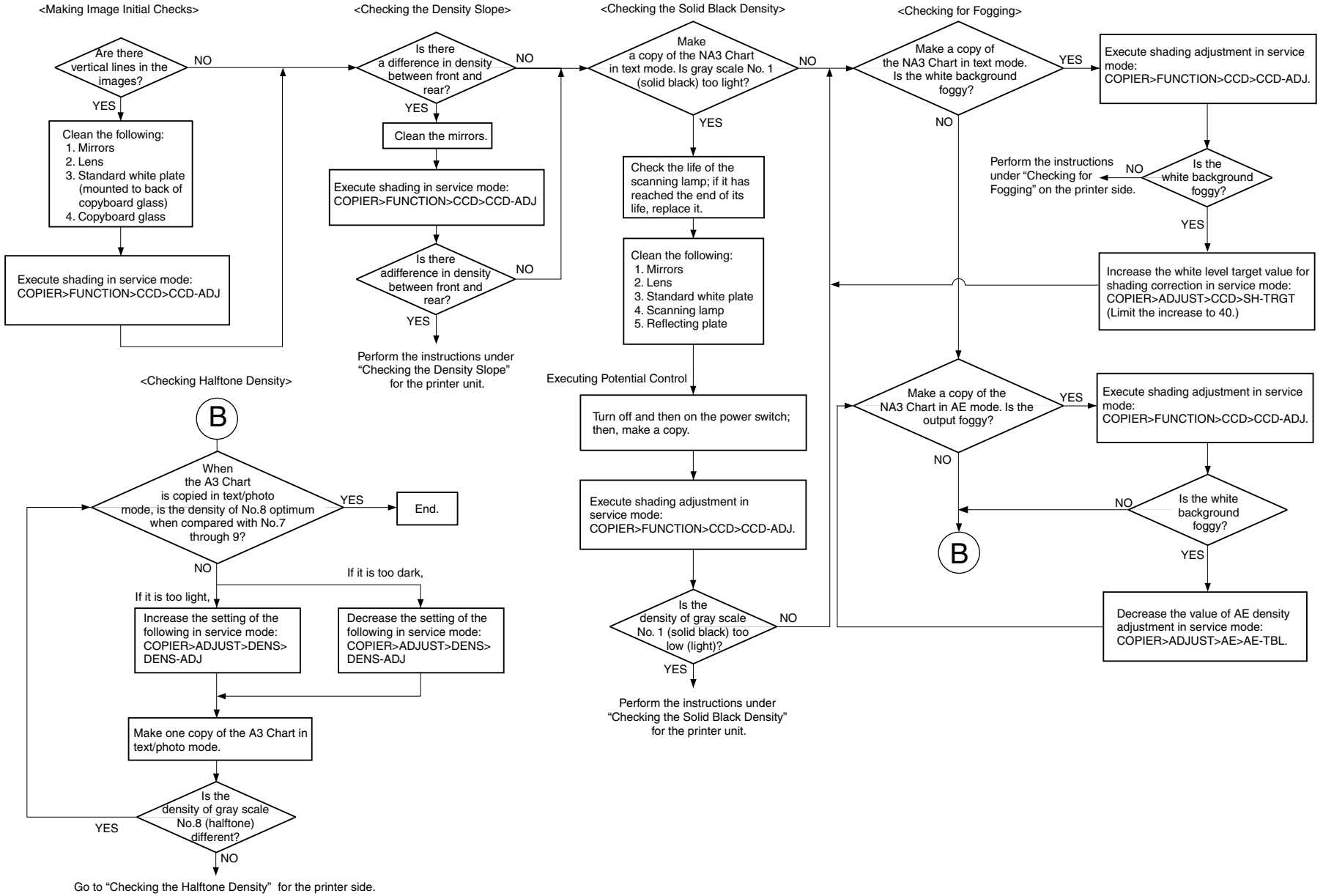
1.1.5 Making Checks on the Reader Unit (iR7200)



F06-101-05

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2 Standards and Adjustments

2.1 Making Image Adjustments

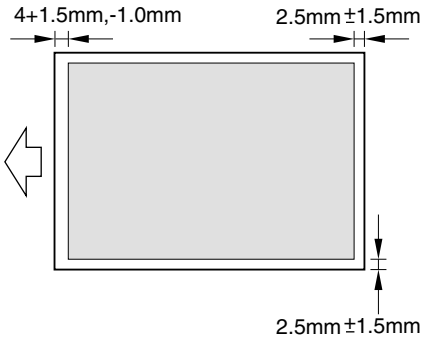
Adjusting the Image Position

Be sure to adjust the image position in the following order:

1. Adjusting the image position for printer output
2. Adjusting the image position for copier output (book move)
3. Adjusting the image position for copier output (ADF mode)

2.1.1 Adjusting the Image Position for Printer Output

Standards for Image Position

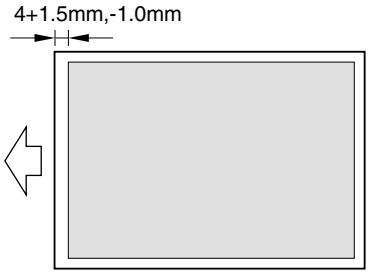


F06-201-01

1) Adjust the image position in main scanning direction as follows:
Check to make sure that the following setting is as indicated on the service label: COPIER>ADJUST>LASER>PVE-OFST. If not, enter the setting recorded on the service label.

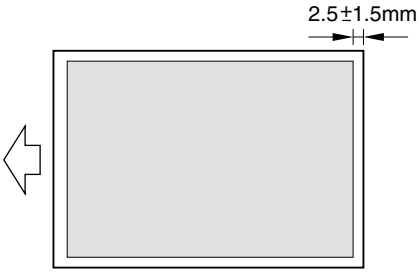
The setting is used so that the image on the photosensitive drum will be centered. Changing the setting can deform the edges of images.

2) Check to make sure the setting of the following is '106':
COPIER>ADJUST>BLANK>BLANK-T. If not, enter '106'.
3) Adjust the image leading edge margin as follows:
Generate output by making the following selections: COPIER>TEST>PG5; then, check the image leading edge margin.
Standard: 4 +1.5, −1.0 mm
Mode: COPIER>ADJUST>FEED-ADJ>REGIST
• A higher setting increases the margin.
• A lower setting decreases the margin.



F06-201-02

4) Adjust the image trailing edge margin as follows:
Generate output by making the following selections: COPIER>TEST>PG5; then, check the image trailing edge margin.
Standard: 2.5 ±1.5 mm
Mode: COPIER>ADJUST>BLANK>BLANK-B
• A higher setting increases the margin.
• A lower setting decreases the margin.



F06-201-03

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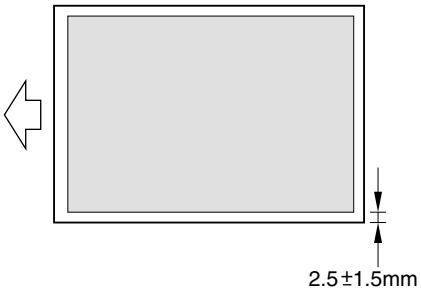
5) Adjust the image front margin for each source of paper as follows:
Select '1' (right deck) by making the following selections: COPIER>TEST>PG-PICK. Then, generate output by making the following selections to adjust the image front margin: COPIER>TEST>PG65.
Likewise, select '2', '3', and '4' by making the following selections: COPIER>TEST>PG-PICK. Then, generate output by making the following selections, and adjust the image front margin: COPIER>TEST>PG5.
Standard: 2.5 ±1.5 mm
PG-PICK 1: right deck
PG-PICK 2: left deck
PG-PICK 3: cassette 3
PG-PICK 4: cassette 4

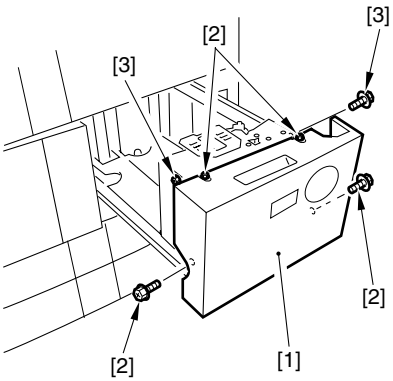


F06-201-04

adjustment: by adjusting the fixed position of each source of paper.

■ Front Deck (left/right)

1) Slide out the deck, and loosen the four screws [2] and the two fixing screws [3] of the cassette front cover [1].



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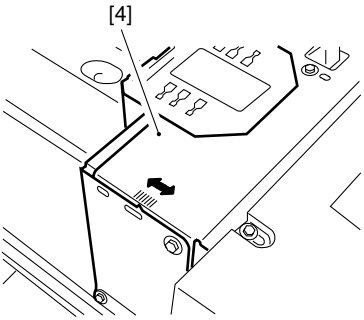
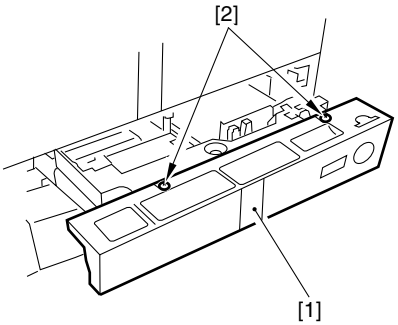
2) Move the cassette guide assembly (front) [4] to the front or the rear, and make adjustments.



F06-201-06

■ Cassette (3/4)

1) Slide out the cassette, and remove the two screws [2] of the cassette front cover [1].



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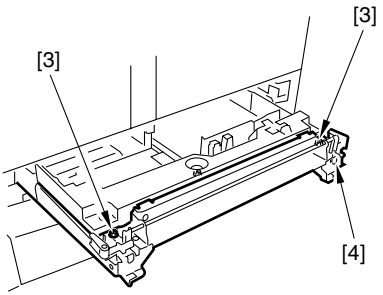
2) Loosen the two fixing screws [3] on the left/right of the cassette, and make adjustments using the adjusting screw [4].



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If you have adjusted cassette 3 or 4, be sure to execute the following service mode:

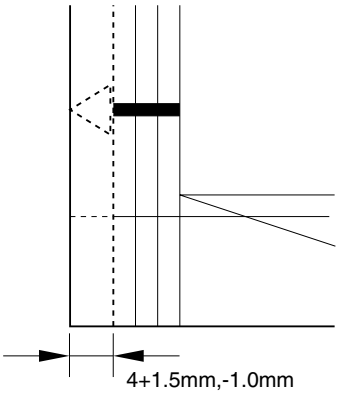
- If you have adjusted cassette 3,
  COPIER>ADJUST>CST-ADJ>C3-STMTR
  COPIER>ADJUST>CST-ADJ>C3-A4R

- If you have adjusted cassette 4,
  COPIER>ADJUST>CST-ADJ>C4-STMTR
  COPIER>ADJUST>CST-ADJ>C4-A4R

2.1.2 Adjusting the Image Position for Copier Output (book mode)

Be sure to complete the image adjustment for printer output before starting the following work.

1) Adjusting the Leading Edge Non-Image Width
Place the NA3 Test Chart on the copyboard glass, and make a copy of it to check the leading edge non-image width.
Standard: 4 +1.5, −1.0 mm
Mode: COPIER>ADJUST>ADJ-XY>ADJ-X
• A higher setting increases the margin.
• A lower setting decreases the margin.



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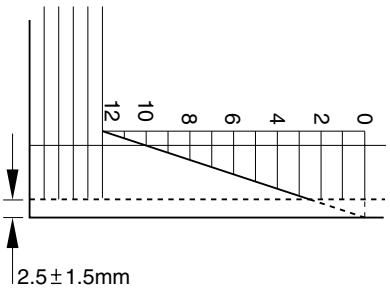
2) Adjusting the Front Non-Image Width
Place the NA3 Test Chart on the copyboard, and make a copy of it to check the front non-image width.
Standard: 2.5 ±1.5 mm
Mode: COPIER>ADJUST>ADJ-XY>ADJ-Y
• A higher setting increases the margin.
• A lower setting decreases the margin.



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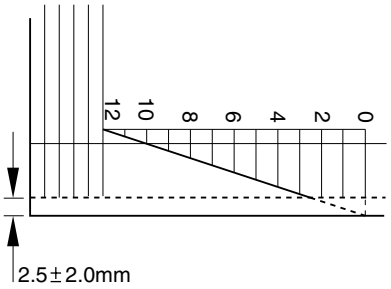
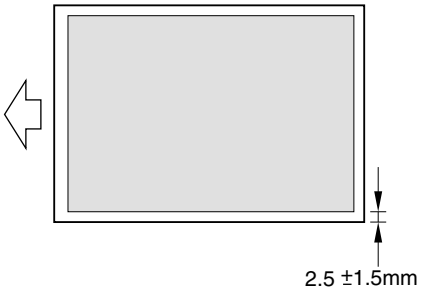
3) Adjusting the Front Non-Image Width for Double-Sided Copies
Place the NA3 Test Chart on the copyboard glass, and make a double-sided copy of it to check the front non-image width on the second side.
Standard: 2.5 ±2.0 mm
Adjustment: COPIER>ADJUST>FEED-ADJ>ADJ-REFE
• A higher setting increases the margin.
• A lower setting decreases the margin.



F06-201-11

4) Adjusting the Front Margin for the Manual Feed Tray and Side Paper Deck (option)
Place the NA3 Test Chart on the copyboard glass, and make a double-sided copy of it to check the front margin on the second side.
Standards: 2.5 ±1.5 mm.



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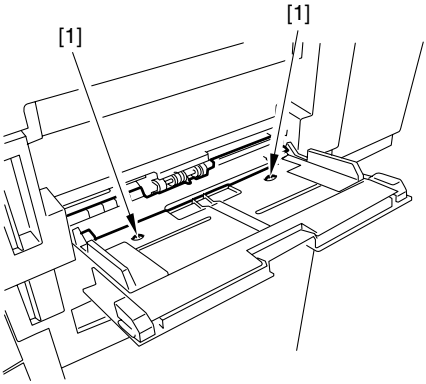
Adjustment: mounting position of each source of paper.

■ Manual Feed Tray

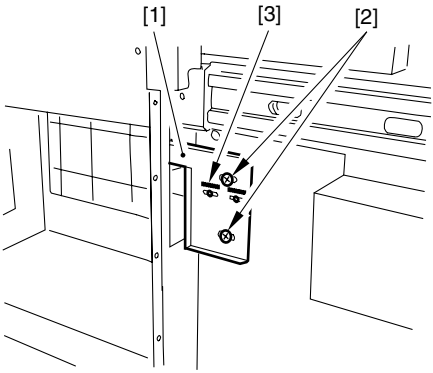
1) Loosen the two mounting screws [1] of the manual feed tray, and adjust the position of the manual feed tray.



F06-201-13

■ Side Paper Deck (option)

1) Slide out the compartment, and adjust the position of the latch plate [1] of the deck open solenoid using the two screws [2].
(For this work, use the scale [3] on the latch plate as a reference.)



F06-201-14

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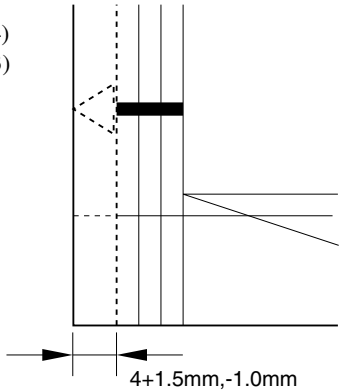
2.1.3 Adjusting the Image Position for Copier Output (ADF mode)

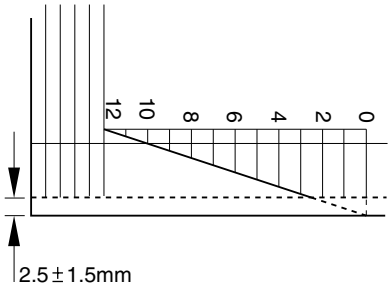
Be sure to complete the adjustment of image position for printer output and the adjustment of image position for copier output (book mode) before starting the following work.

1) Adjusting the Leading Edge Non-Image Width Place an A3 test chart (and an A4 test chart) in the original tray of the ADF, and make copies to check the leading edge non-image width.
   Standard: 4 +1.5, −1.0 mm
   Adjustment: FEEDER>ADJUST>STRD-S (for A4)
   FEEDER>ADJUST>STRD-L (for A3)
   • A higher setting increases the margin.
   • A lower setting decreases the margin.



F06-201-15

2) Adjusting the Front Non-Image Width Place A3 test chart in the original tray of the ADF and make a copy of it to check the front non-image width.
   Standards: 2.5 ±1.5 mm
   Adjustment: mounting position of the ADF original tray.



F06-201-16

2.2 Scanner System

2.2.1 Replacing the Scanner Drive Cable

See Chapter 2 >2.9.2.b.

2.2.2 Adjusting the Position of the Scanner Mirror Base

See Chapter 2 >2.9.2.b.

2.2.3 When Replacing the Scanning Lamp
When Replacing the Standard White Plate

(iR8500)

See Chapter 2 >2.9.1.c.

See Chapter 2 >2.9.4.g.

(iR7200)

See Chapter 2 >3.9.4

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2.3 Image Formation System

2.3.1 Stringing the Grid Wire of the Primary Charging Assembly

See Chapter 2>7.9.2.d.

2.3.2 Stringing the Charging Wire of Charging Assemblies

See Chapter 2>7.9.2.c.

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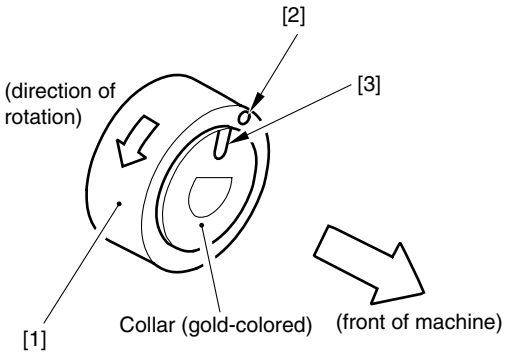
2.4 Pickup/Feeding System

2.4.1 Orientation of the Deck/Cassette Pickup Roller

Mount the parts by reversing the steps used to remove them with the following in mind:

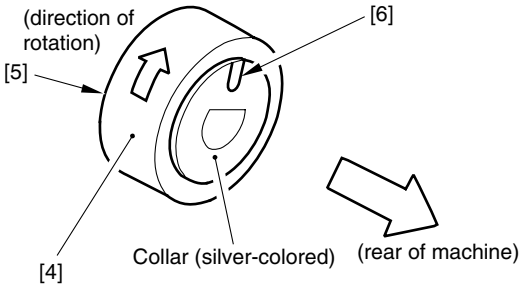
- The front and rear pickup rollers are not interchangeable.
- The collar of the front pickup roller is gold-colored.

When mounting the pickup roller [1] to the pickup assembly, be sure that the round marking [2] on the side of the roller and the round marking [3] on the collar (gold-colored) are toward the front of the machine.



F06-204-01

- The rear pickup roller is silver-colored. When mounting the pickup roller [4] to the pickup assembly, be sure that the round marking [5] on the side of the roller and the round marking [6] on the collar (silver-colored) are toward the rear of the machine.



F06-204-02

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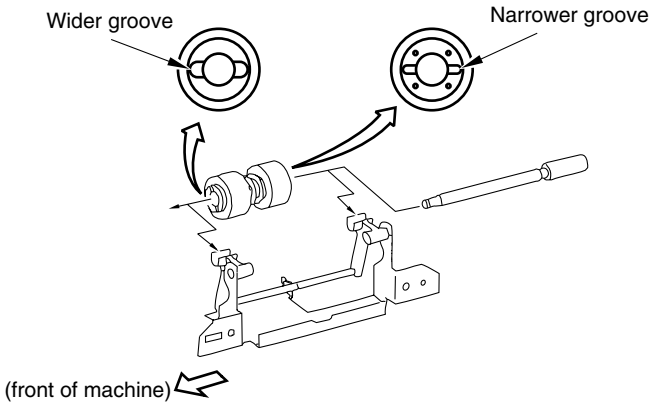
2.4.2 Orientation of the Deck/Cassette Separation Roller

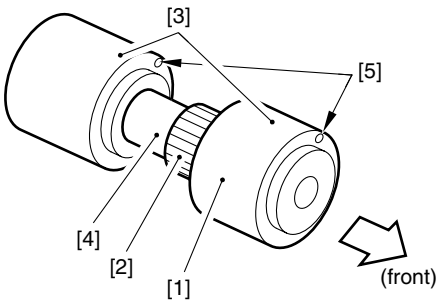
When replacing the separation roller, be sure it is orientated as follows:



F06-204-03

2.4.3 Orientation of the Feeding Roller of the Deck/Cassette Pickup Assembly

When mounting the feeding roller assembly of the deck/cassette pickup assembly, be sure that the belt pulley [2] is toward the front of the machine. When mounting the feeding roller [3] to the feeding roller shaft [4], be sure that the round marking [5] is toward the front of the machine.



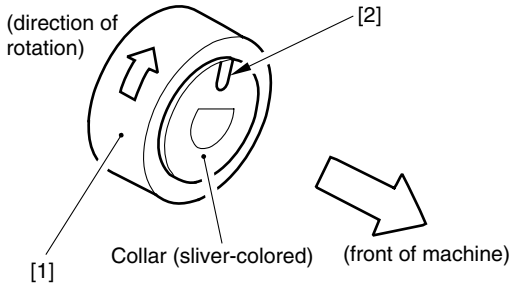
F06-204-04

2.4.4 Orientation of the Pickup Roller of the Manual Feed Tray/Side Paper Deck

Mount the part by reversing the steps used to remove it with the following in mind:

- The front and rear pickup rollers are not interchangeable.
- The front pickup roller is silver-colored.

When mounting the pickup roller [1] to the pickup assembly, be sure that the round marking [2] on the collar (silver-colored) is toward the front of the machine.

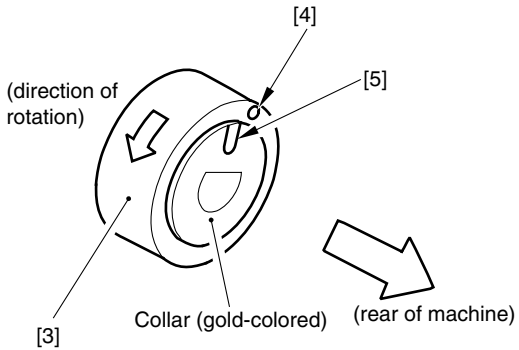


[1] Pickup roller
[2] Marking (collar)

F06-204-05

- The rear pickup roller is gold-colored.

When mounting the pickup roller [3] to the pickup assembly, be sure that the round marking [4] on the side of the roller and the round marking [5] on the collar (silver-colored) are toward the rear of the machine.



[3] Pickup roller
[4] Marking (roller)
[5] Marking (collar)

F06-204-06

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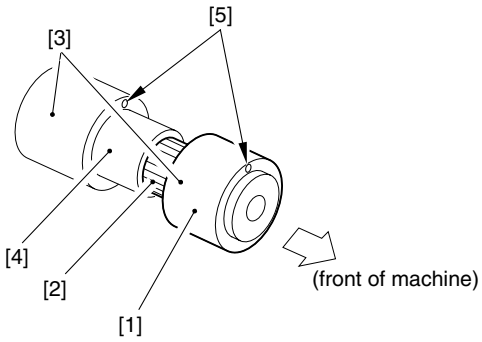
2.4.5 Orientation for the Feeding Roller of the Manual Feed Tray

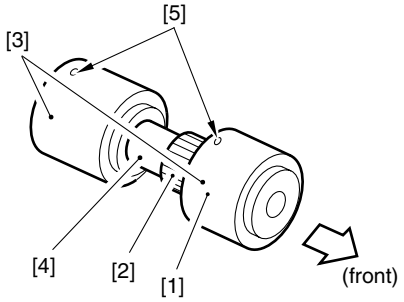
When mounting the feeding roller assembly [1] to the manual feed tray pickup assembly, be sure that the belt pulley [2] is toward the front of the machine. When mounting the feeding roller [3] to the feeding roller shaft [4], be sure that the round marking [5] is toward the front of the machine.



F06-204-07

2.4.6 Orientation of the Feeding Roller of the Side Paper Deck

When mounting the feeding roller assembly [1] to the side paper deck pickup assembly, be sure that the belt pulley [2] is toward the front of the machine. When mounting the feeding roller [3] to the feeding roller shaft [4], be sure that the round marking [5] is toward the rear of the machine.

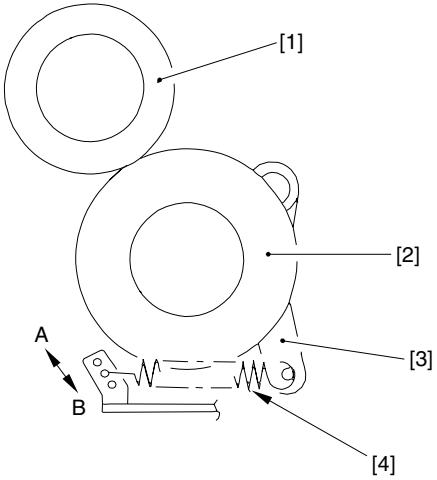


F06-204-08

2.4.7 Adjusting the Pressure of the Separation Roller of the Deck/Cassette

If double feeding or pickup failure occurs during pickup, change the position of the pressure spring of the separation roller.

- If double feeding occurs, move the hook of the spring in the direction of B.
- If pickup failure occurs, move the hook of the spring in the direction of A.



[1] Feeding roller
[2] Separation roller
[3] Locking lever
[4] Pressure spring

F06-204-09

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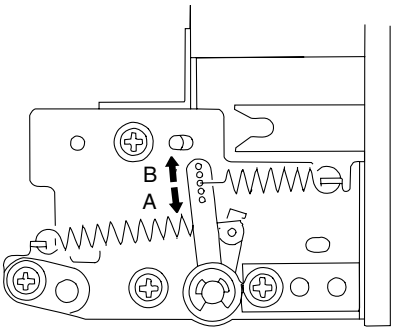
2.4.8 Adjusting the Pressure of the Pickup/Feeding Roller of the Manual Feed Tray

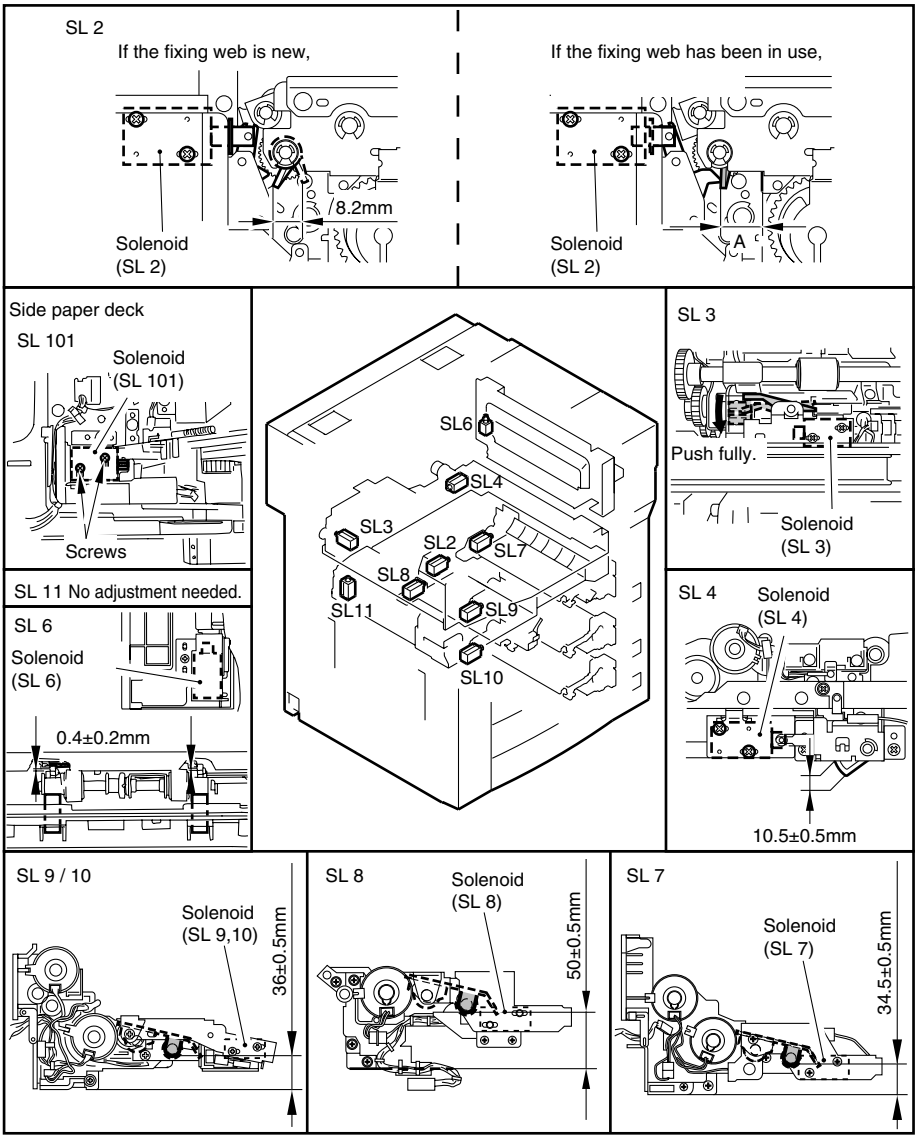
If double feeding or pickup failure occurs during pickup, adjust the position of the separation roller:

- If double feeding occurs, move the hook of the spring in the direction of A.
- If pickup failure occurs, move the hook of the spring in the direction of B.



F06-204-10

2.4.9 Position of the Solenoids



F06-204-11

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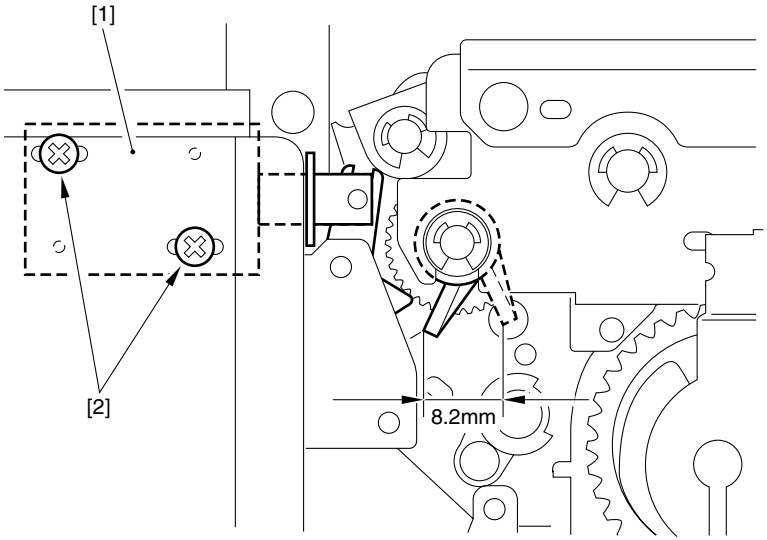
2.4.10 Position of the Fixing Web Solenoid (SL2)

a. If the Fixing Web Is New

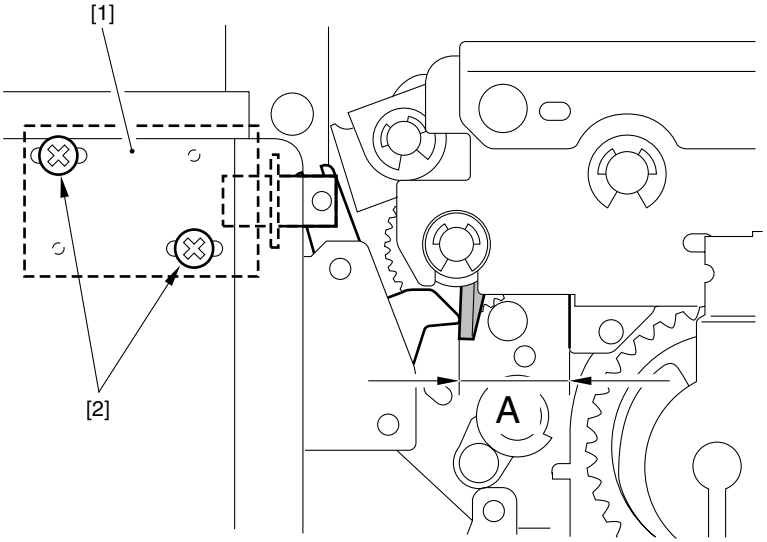
Use the screw [2] to adjust the position of the solenoid [1] so that the travel of the drive lever is 8.2 mm.



F06-204-12

b. If the Fixing Web Has Been in Use

Before removing the solenoid, take note of the position [A] of the drive lever when the solenoid [1] is ON; after replacement, adjust the position of the drive lever using the screw [2] so that it is the same as it was before removal when the solenoid goes on.



F06-204-13

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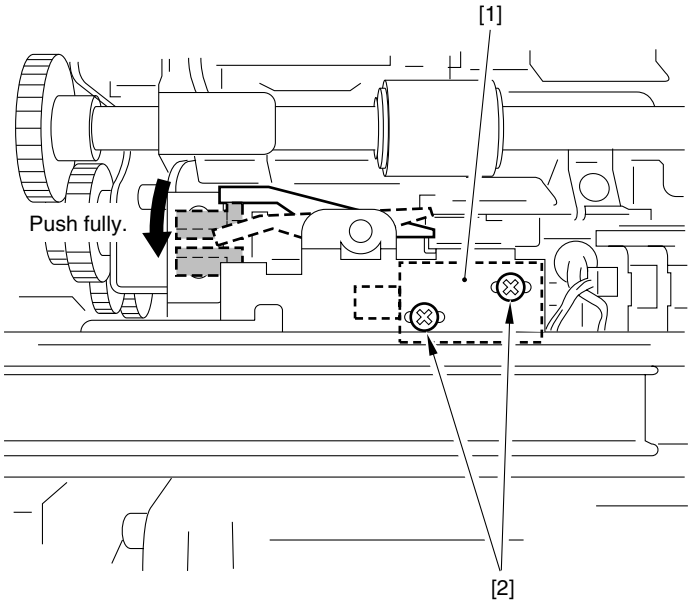
2.4.11 Position of the Delivery Flapper Solenoid (SL3)

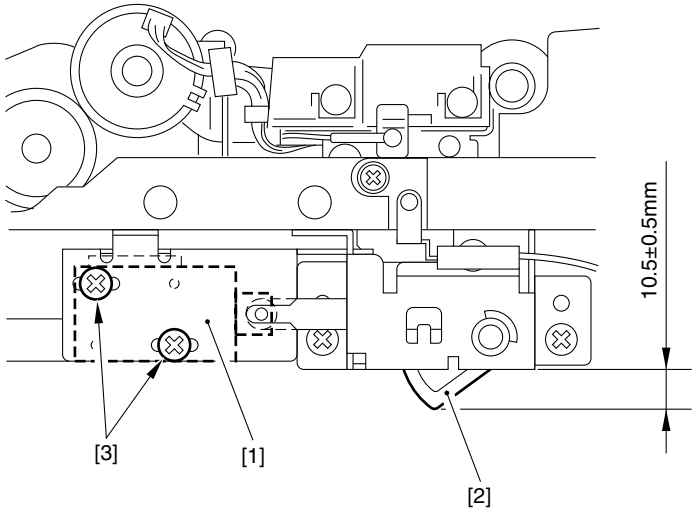
Use the screw [2] to adjust the position of the solenoid so that, when the solenoid [1] goes on (i.e.., when steel core is drawn), the drive lever is fully pushed.



F06-204-14

2.4.12 Position of the Fixing Feeding Unit Locking Solenoid (SL4)

Adjust the position of the solenoid using the screw [3] so that the locking lever [2] will stick out 10.5 ±0.5 mm from the frame when the solenoid [1] goes ON (i.e., the steel core is drawn).



F06-204-15

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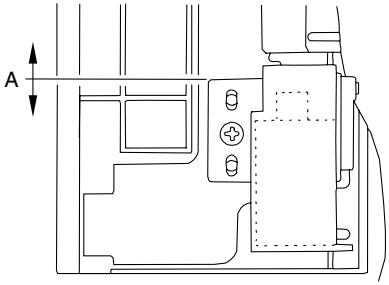
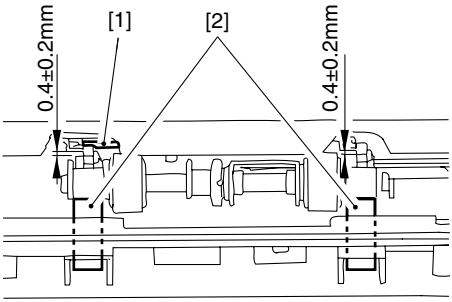
2.4.13 Adjusting the Position for the Multifeeder Pickup Latch Solenoid (SL6)

Adjust the solenoid in the direction of A to adjust so that the gap between the shutter [1] and the shutter plate [2] is 0.4 ±0.2 mm when the solenoid is pulled.



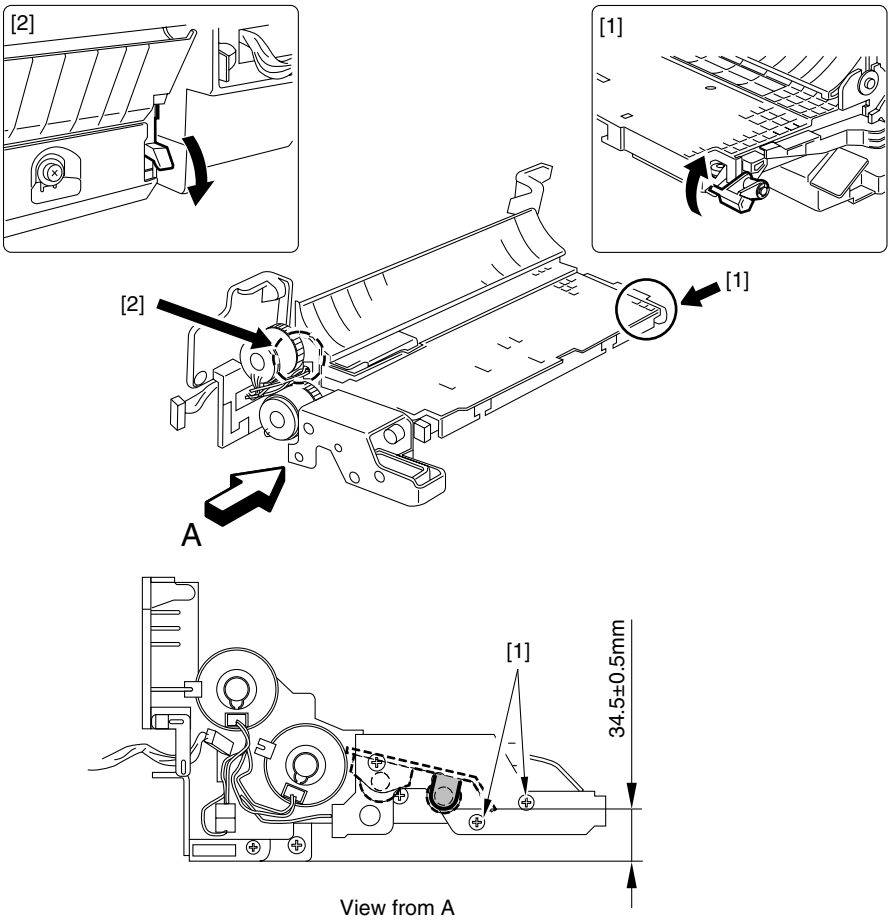
F06-204-16



F06-204-17

2.4.14 Position of the Deck (right) Pickup Solenoid (SL7)

Adjust the position using the screw [1] so that when [1] and [2] in the following figure are operated and the plunger of the pickup roller releasing solenoid is pulled, the distance from the bottom of each pickup unit to the bottom edge of the bushing of the roller support plate is 34.5 ±0.5 mm.



F06-204-18

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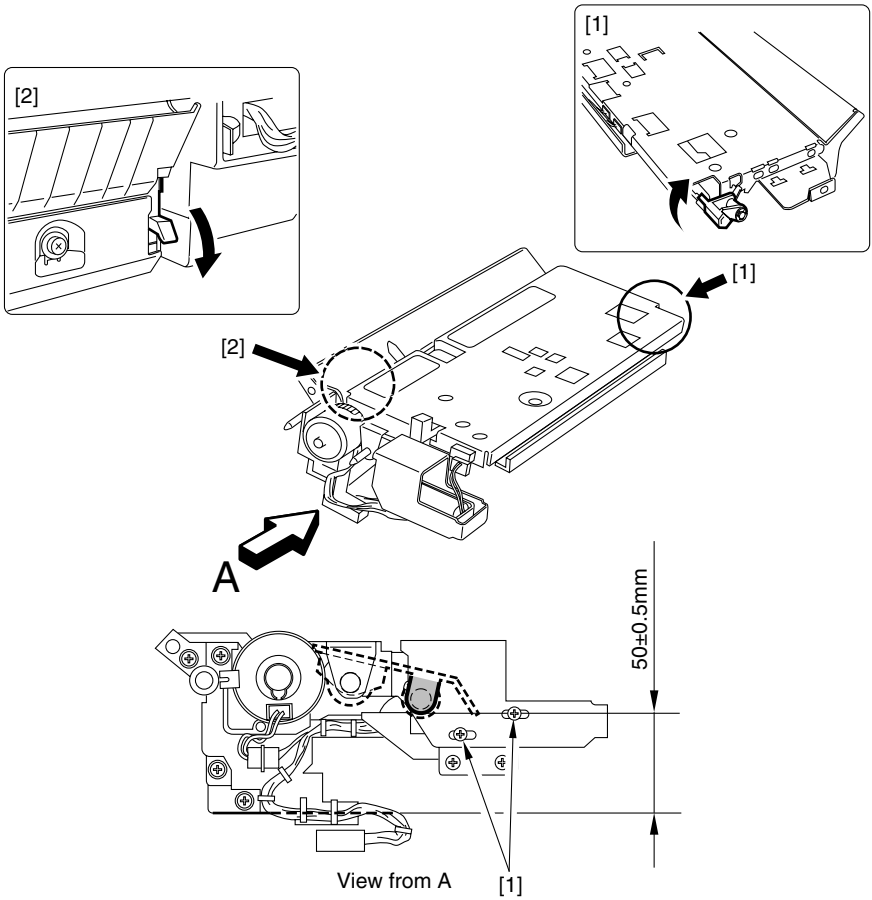
2.4.15 Position of the Deck (left) Pickup Solenoid (SL8)

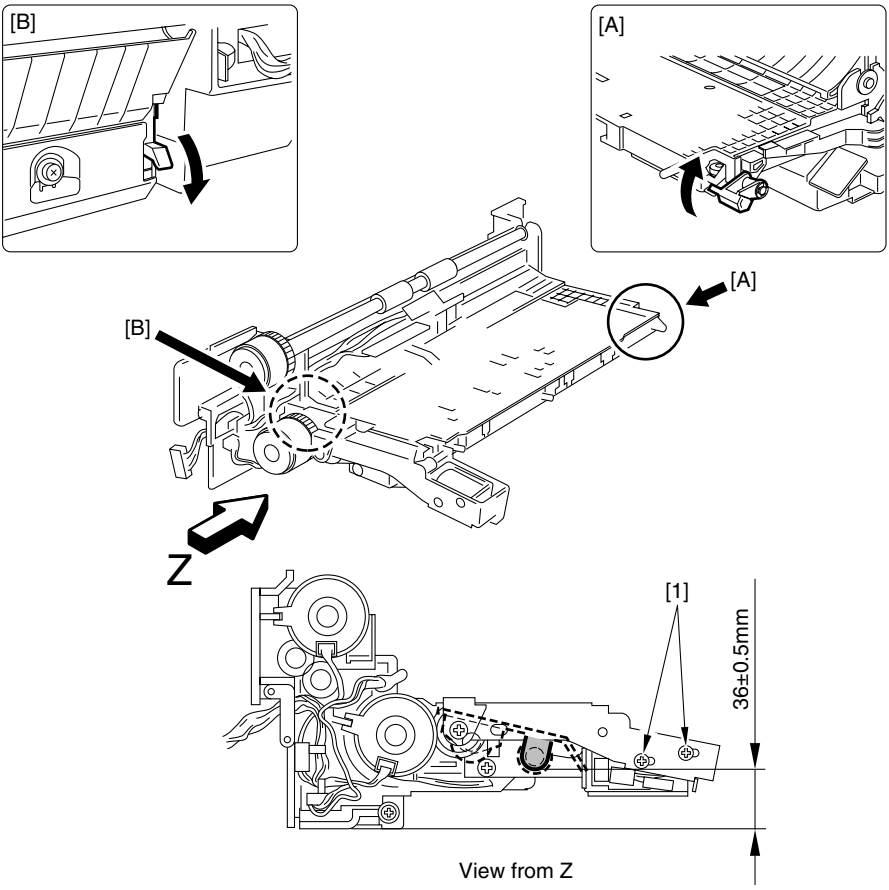
Adjust the position using the screw [1] so that when [1] and [2] in the following figure are operated and when the plunger of the pickup roller releasing solenoid is pulled, the distance from the bottom of each pickup unit to the bottom of the bushing of the roller support plate is 50 ±0.5 mm.



F06-204-19

2.4.16 Position for the Cassette 3/4 Pickup Solenoid (SL9/10)

Adjust the position using the screws [1] so that when [A] and [B] in the following figure are operated and when the plunger of the pickup roller releasing solenoid is pulled, the distance from the bottom of each pickup unit to the bottom edge of the bushing of the roller support plate is 36 ±0.5 mm.



F06-204-20

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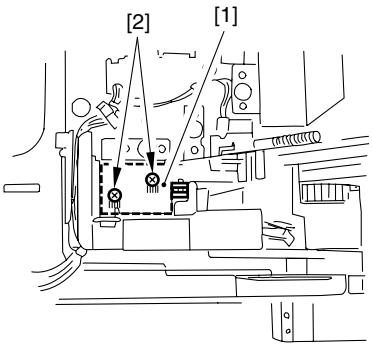
2.4.17 Position of the Side Paper Deck Pickup Roller Releasing Solenoid

Before removing the deck pickup roller releasing solenoid [1], be sure to take note of the positions of the two fixing screws [2] of the solenoid with reference to the scale on the support plate. Or, mark the position for the solenoid itself on the support plate using a scriber.

If you are replacing the solenoid on its own, be sure to secure the solenoid exactly where the old solenoid was found.

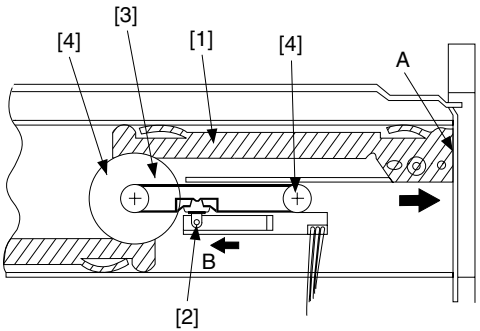


F06-204-21

2.4.18 Attaching the Timing Belt for the Manual Feed Tray Assembly Side Guide

Butt the rack plate [1] of the manual feed tray against A (open state).

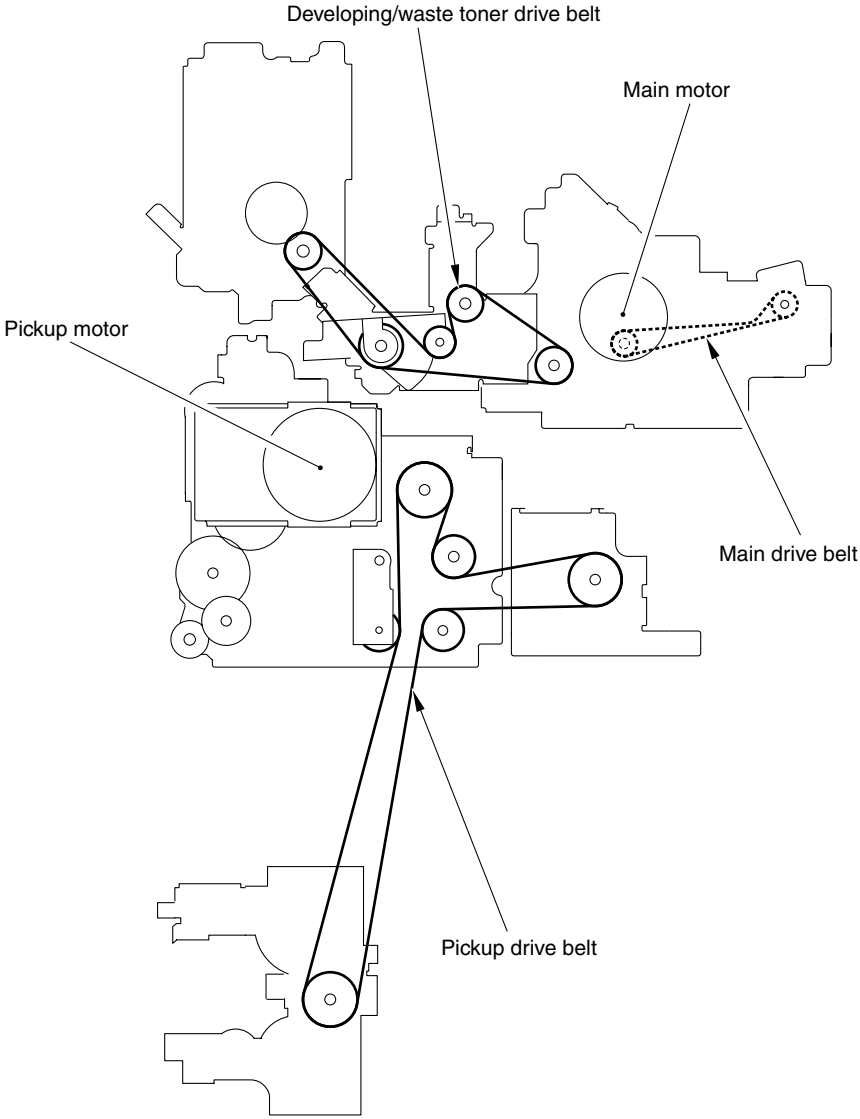
Move the slide volume [2] in the direction of B, and attach the timing belt [3] to the pulley [4].



F06-204-22

2.4.19 Attaching the Drive Belts

Be sure to attach the drive belts on the pulleys and the rollers as shown.



F06-204-23

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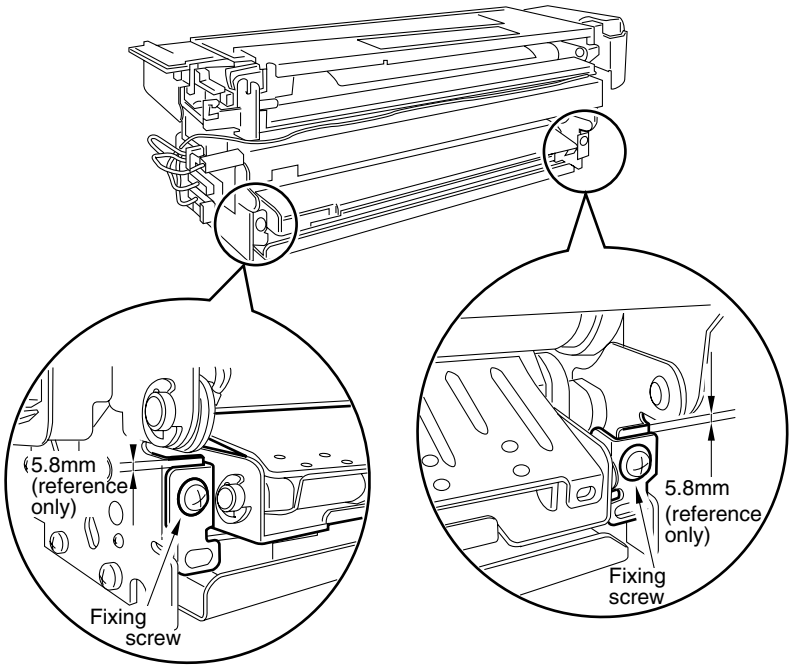
2.5 Fixing System

2.5.1 Points to Note When Mounting the Fixing Heater

1. Do not touch the surface of the heater directly.
2. For both heaters, be sure that the side with the longer heater wire is toward the front.
3. When viewing from the front, mount the main heater (1000 W for 100V model; 900 W for 208V model; 965W for 230V model) on the right and the sub heater (400 W for 100V model; 600 W for 208V model; 645W for 230V model) on the left.
4. When viewing from the rear, connect the faston for the heater at the rear so that the right side is to the main heater and the top side is to the sub heater.

Height of the Fixing Assembly Inlet Guide

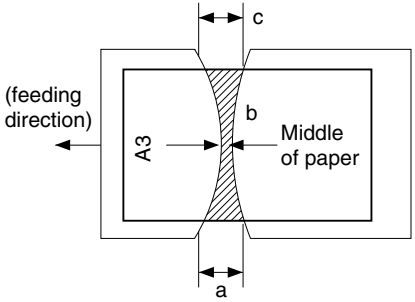


F06-205-01

If you should remove the inlet guide base, you will have to adjust the position of the inlet guide. Do not loosen the fixing screw on the inlet guide. If you must, be sure to put it back to its original position with reference to the scale on the fixing assembly base.

2.5.2 Adjusting the Lower Roller Pressure (nip width)

The nip width is correct if it is as indicated. Otherwise, adjust it using a pressure adjusting nut.



F06-205-02

a and c are points 10 mm from both edges of paper.

Dimension	Take measurements when both upper/ lower roller are sufficiently heated.
b	9.0 ± 0.5 mm
| a-c |	0.5 mm or less

T06-205-01

a. Generating Output for Measuring the Nip Width

Before measuring the nip width, wait for 15 min after the end of the machine's warm-up period and make 20 A4 copies:

1) Place A3 paper in the manual feed tray.
2) Make the following selections in service mode to generate output:
   COPIER>FUNCTION>FIXING>NIP-CHK.

The A3 paper will be picked up and a copy (F06-205-02) will be delivered.

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2.6 Laser Exposure System

2.6.1 Replacing the Laser Unit

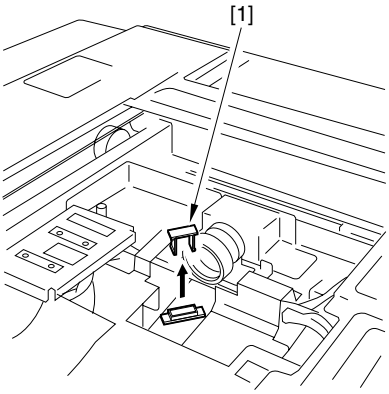
1) Check to make sure that the Data lamp in the control panel is OFF, and turn off the main power switch.
2) Disconnect the power plug from the power outlet.

The machine remains supplied with power as long as its power plug is connected to a power outlet even when its main power switch is turned off. Be sure to disconnect the power plug.

3) Replace the laser unit.
4) Take notes of the label settings (LA-DELAY) on the new laser unit.
5) After assembling the machine, connect the power plug to the power outlet, and turn on the main power switch.
6) Enter the settings recorded in step 4) in service mode:
COPIER>ADJUST>LASER>LA-DELAY.

2.6.2 Checking the Laser Power

1) Check to make sure that the Data lamp in the control panel is OFF, and turn off the main paper switch.
2) Disconnect the power plug from the power outlet.
3) Remove the copyboard glass.
4) Open the laser power check slot cover [1].



F06-206-01

5) Shift the switch on the laser power checker (FY9-4008) to '2'.

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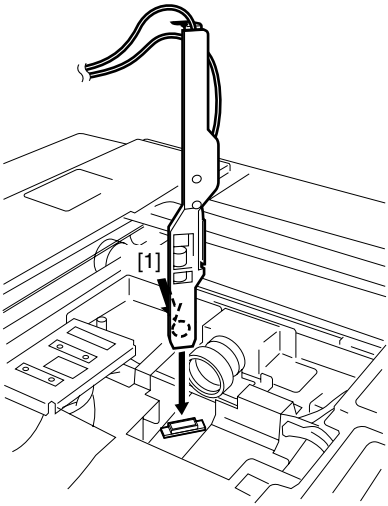
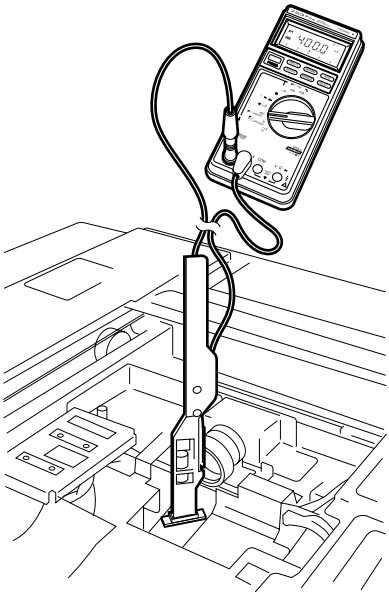
6) Fit the laser power checker with its light-receiving face [1] as indicated.



F06-206-02

7) Connect the probe of the laser power checker to the digital multimeter.



F06-206-03

8) Connect the power plug to the power outlet, and turn on the main power switch.
9) Make the following selections in service mode: COPIER>FUNCTION>LASER.
10) Select 'POWER-A', and press the OK key.
11) See that the reading of the digital multimeter is 9 to 11 mV, indicating the power of laser A is correct.
12) Select 'POWER-B', and press the OK key.
13) See the the reading of the digital multimeter is 9 to 11 mV, indicating that the power of laser B is correct.

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2.7 Items Related to Electrical Components

2.7.1 Electrical Components Requiring Work After Replacement

Part name	Work reference
Standard white plate	P. 6-43
Scanning lamp	P. 6-44
CCD unit	P. 6-44
Reader controller PCB	P. 6-46
Main controller PCB	P. 6-47
HDD unit	P. 6-47
DC controller PCB	P. 6-48
High-voltage DC PCB	P. 6-49
Laser unit	P. 6-50
Potential sensor/potential control PCB	P. 6-50

2.7.2 Points to Note when Replacing the CCD Unit

1) Check to make sure that the Execute/Memory lamp in the control panel is OFF, and turn off the main power switch.
2) Disconnect the power plug from the power outlet.

The machine remains supplied with power as long as its power plug is connected to a power outlet even when its main power switch is turned off. Be sure to disconnect the power plug.

3) Replace the CCD unit.
4) After assembling the machine, connect the power plug to the power outlet, and turn on the main power switch.
5) Execute the following service modes in sequence:
   1. COPIER>FUNCTION>CCD>CCD-ADJ
   2. CCD edge gain correction position auto adjustment:
      COPIER>FUNCTION>CCD>EGGN-POS (iR7200)
   3. COPIER>FUNCTION>CCD>LUT-ADJ (iR8500)
6) See that all items of COPIER>ADJUST>CCD and all data of COPIER>ADJUST>LAMP>L-DATA (iR8500 only) are updated. Record the results on the service label.
7) Turn off and then on the main power switch.

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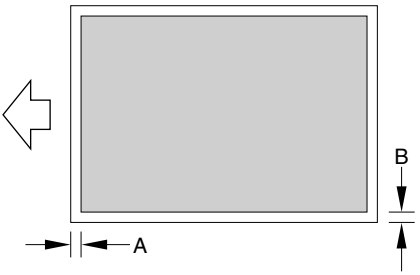
8) Make test copies in book mode and feeder mode, and check to make sure that they are free of displaced images. Otherwise, execute the following:
Book Mode
A: COPIER>ADJUST>ADJ-XY>ADJ-X
B: COPIER>ADJUST>ADJ-XY>ADJ-Y



F06-207-01

Feeder Mode
C: COPIER>ADJUST>ADJ-Y-DF

F06-207-02

9) Execute the following in service mode to generate a service label; FUNCTION>MISC-P>LBL-PRNT. Store the service label in the service book case.

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2.7.3 When Replacing the Reader Controller PCB (iR8500)

1) Execute the following in service mode to generate the setting of each item: COPIER, FUNCTION>MISC-P>LBL-PRNT and COPIER>FUNCTION>MISC-P>USER-PRT.
2) Check to make sure that that Execute/Memory lamp in the control panel are OFF, and turn off the main power switch.
3) Disconnect the power plug from the power outlet.

The machine remains supplied with power as long as its power plug is connected to a power outlet even when its main power switch is turned off. Be sure to disconnect the power plug.

4) Replace the reader controller PCB.
5) After assembling the machine, connect the power plug to the power outlet, and turn on the main power switch.
6) Execute the following in service mode: COPIER>FUNCTION>CLEAR>R-CON.
7) Turn on and then off the main power switch.
8) Execute the following in service mode: COPIER>FUNCTION>CCD>CCD-ADJ.
9) Enter the setting of each item generated in step 1):
   - Service Mode
     COPIER>ADJUST>ADJ-XY (4 items)
     COPIER>ADJUST>LAMP (1 item)
     COPIER>ADJUST>CCD (29 items)
   - User Mode
10) Turn off and then on the main power switch, and execute COPIER>FUNCTION>MISC-P>LBL-PRNT in service mode to generate a service label. Then, store it in the service book case.

2.7.4 When Replacing the Reder controller PCB (iR7200)

1) Print out the data of user mode/service mode.
2) Check to make sure that the Execute/Memory lamp in the control panel ore OFF, and turn off the main power switch.
3) Disconnect the power plug from the power outlet.

The machine remains supplied with power as long as its power plug is connected to a power outlet even when is main power switch is turned off. Be sure to disconnect the power plug.

4) Replace the reader controller PCB.
5) Remove the EEPROM (1 pc.) from the existing PCB, and mount it to the new PCB.
6) After assembling the machine, connect the power plug to the power outlet, and turn on the main power switch.
7) Check to make sure that the following service mode settings are the same as the data before replacement:
   COPIER>ADJUST>AE>all items
   COPIER>ADJUST>ADJ-XY>all items
   COPIER>ADJUST>CCD>all items

If any service mode setting is faulty, enter the respective setting recorded on the service label in service mode.

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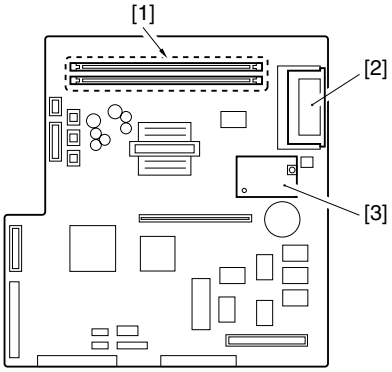
2.7.5 Replacing the Main Controller PCB

1) Make a backup of the data using the Service Support Tool.
2) Replace the main controller PCB.
3) Detach the following PCBs from the existing PCB, and mount it to the new PCB:
   - SD-RAM [1]
   - BOOT-ROM [2]
   - Counter memory PCB [3]



F06-207-03

4) After assembling the machine, connect the power plug to the power outlet, while holding down '2' and '8' keys on the keypad in the control panel at the same time, turn on the main power switch.
5) Put the data back in.

2.7.6 Replacing the HDD Unit

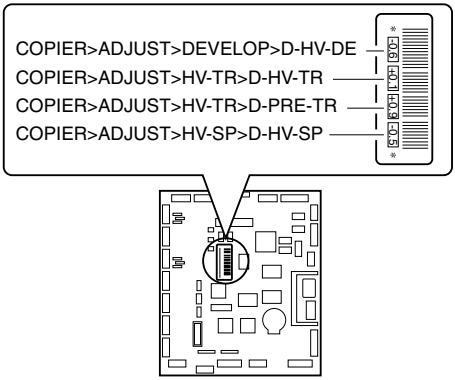
When replacing the HDD unit, take note of the following:
1. Provide measures against static charges to avoid static destruction.
2. Protect the HDD unit against impact.

1) Replace the HDD unit.
2) After assembling the machine, connect the power plug to the power outlet.
3) Connect a PC*.
   *To which the Service Support Tool has been installed.
4) Turn on the PC; while holding down '2' and '8' keys on the keypad in the control panel at the same time, turn on the main power switch.
5) Using the Service Support Tool format the HDD unit and install the system software.

2.7.7 Replacing the DC Controller PCB

1) If possible, print out the data of user mode/service mode.
2) Replace the DC controller PCB.
3) Execute the following service mode to initialize RAM.
   COPIER>FUNCTION>CLEAR>DC-CON
4) After assembling the machine, connect the power plug to the power outlet, and turn on the power switch.
5) Enter the settings of the following from the service label:
   COPIER>ADJUST>LASER (all items)
   COPIER>ADJUST>DEVELOP (all items)
   COPIER>ADJUST>DENS (all items)
   COPIER>ADJUST>BLANK (all items)
   COPIER>ADJUST>V-CONT (all items)
   COPIER>ADJUST>HV-PRI (all items)
   COPIER>ADJUST>HV-TR (all items)
   COPIER>ADJUST>HV-SP (all items)
   COPIER>ADJUST>FEED-ADJ (all items)
   COPIER>ADJUST>CST-ADJ (all items)
   COPIER>ADJUST>EXP-LED (all items)

6) Enter the settings (4 types) recorded on the label attached to the new DC controller PCB in service e mode.



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7) Turn off and then on the main power switch.

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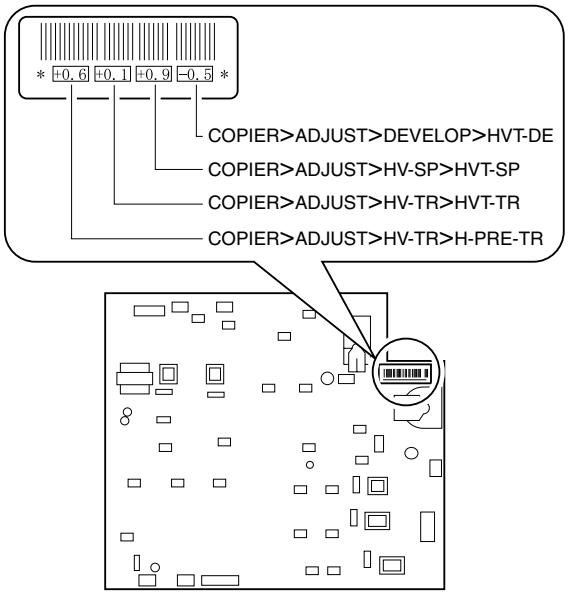
2.7.8 After Replacing the High-Voltage DC PCB

1) Replace the high-voltage DC PCB.
2) Assemble the machine; then, connect the power plug to the power outlet, and turn on the main power switch.
3) Enter the values (4 types) indicated on the label on the new high-voltage DC PCB in service mode.



F06-207-05

4) Turn off and then on the main power switch.

2.7.9 When Replacing the Laser Unit

1) Check to make sure that the Execute/Memory indicator in the control panel is OFF, and turn off the main power switch.
2) Disconnect the power plug from the power outlet.

The machine remains supplied with power as long as the power plug remains connected to the power outlet. Be sure to disconnect the power plug.

3) Replace the laser unit.
4) Take notes of the settings (LA-DELAY) on the label attached to the new laser unit.
5) After assembling the machine, connect the power plug to the power outlet, and turn on the main power switch and the control panel power switch.
6) Enter the settings recorded in step 4) in service mode: COPIER>ADJUST>LASER>LA-DELAY.

2.7.10 Replacing the Potential Sensor/Potential Control PCB

1) Check to make sure that the Execute/Memory lamp in the control panel is OFF, and turn off the main power switch.
2) Disconnect the power plug from the power outlet.

The machine remains supplied with power as long as its power plug is connected to a power outlet even when its main power switch is turned off. Be sure to disconnect the power plug.

3) Replace the potential sensor/potential control PCB.

The potential sensor and the potential control PCB are adjusted as a pair, requiring simultaneous replacement.

4) Remove the developing assembly, and slide out the process unit.

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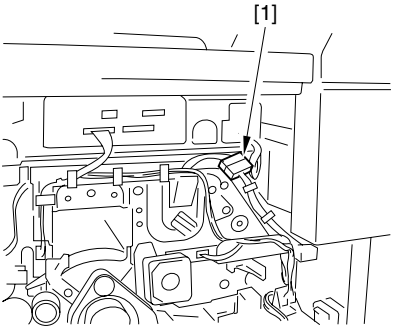
5) Disconnect the connector [1] of the potential sensor.



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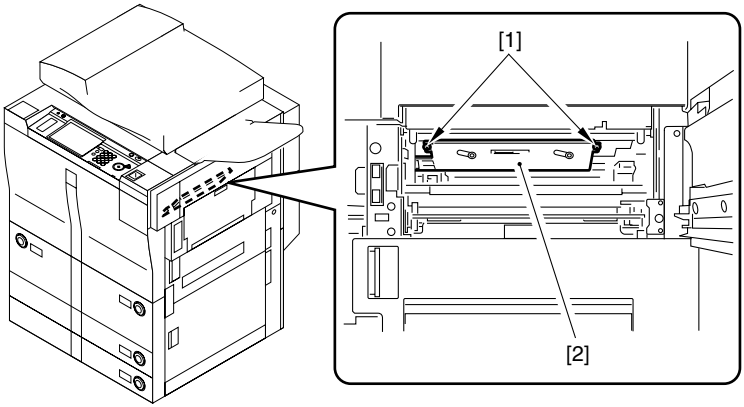
6) Remove the two screws [1], and detach the potential sensor support plate [2].



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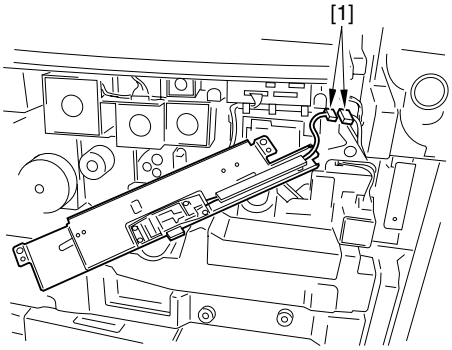
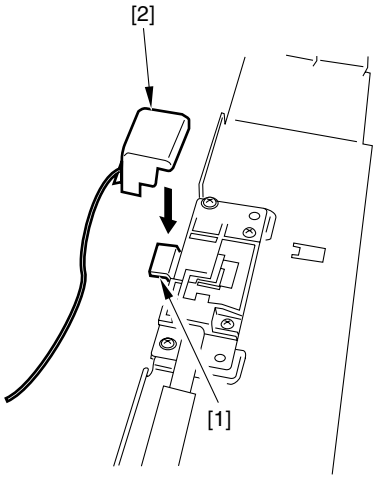
7) Put the developing assembly and the process unit back into their initial positions.
8) Connect the connector [1] of the potential sensor.



F06-207-08

9) Fit the potential sensor checking electrode (FY9-3041) [2] to the potential sensor [1].



F06-207-09

When mounting the potential sensor checking electrode to the potential sensor, take care so that the magnet of the checking electrode will not come into contact with the potential sensor cover.

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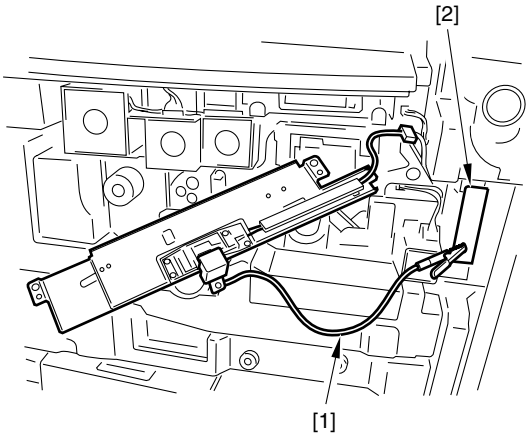
10) Connect the cable [1] of the potential sensor checking electrode to the frame (GND) [2] of the machine.

Be sure to allow enough space from the window of the sensor so the the clip will not come into contact with the cover of the sensor.



F06-207-10

11) Insert the door switch actuator into the door switch assembly.
12) Connect the power plug to the power outlet, and turn on the main power switch.
13) Execute the following in service mode: COPIER>FUNCTION>DPC>OFST.
14) Record the setting of 'OFST' on the service label.
15) Turn off the main power switch.
16) Disconnect the power plug from the power outlet.
17) Detach the potential sensor checking electrode.
18) Put the potential sensor support plate back into its initial position.
19) Connect the power plug to the power outlet, and turn on the main power switch.

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2.7.11 Checking the Surface Potential Control System

a. Outline

If an image fault occurs, it is important to find out if the cause is in the latent image formation block (including the photosensitive drum and the potential control system) or in the development/transfer system, requiring a check to see if the surface potential is appropriate.

The service potential may be checked in service mode.

b. Disabling Auto Control

As a means of finding out if the corona current control, lamp intensity control, or developing bias control mechanisms is faulty, the auto control mechanism may be disabled (hereafter, "non-auto control mode").

In addition, non-auto control mode may be made use of as an emergency remedy in the event a fault occurs in the auto control mechanism.

1. Procedure
   1) Make the following selections in service mode, and enter '0': COPIER>OPTION>BODY>P0-CNT; then, press the OK key.
   2) Press the reset key twice.

When non-auto control mode is selected, all settings for corona current control, intensity control, and developing bias control will automatically be set to standard settings stored in ROM.

2. Making Use of Non-Auto Control Mode

Use it to find out if the cause is on the input side or on the output side of the microprocessor on the DC controller PCB when an image fault occurs.

If any improvement is noted in non-auto control mode, a fault may be suspected in the potential measurement unit or the DC controller PCB.

c. Zero-Level Check

A "zero-level check" may be used as a means to find out whether the surface potential control circuit is good or not.

In a zero-level check, a check is made to find out whether the microprocessor indicates 0 V when the drum surface potential is 0 V.

Using a zero-level check, the microprocessor on the DC control PCB and the measurement unit may be checked.

In method 1, the condition of the level shift circuit on the DC controller PCB may be checked while in method 2 the potential control circuit may be checked.

1. Method 1
   1) Turn off the power switch.
   2) Short J522-1 and -2 on the DC controller PCB with a jumper wire, and disconnect connector J3 of the potential control PCB.

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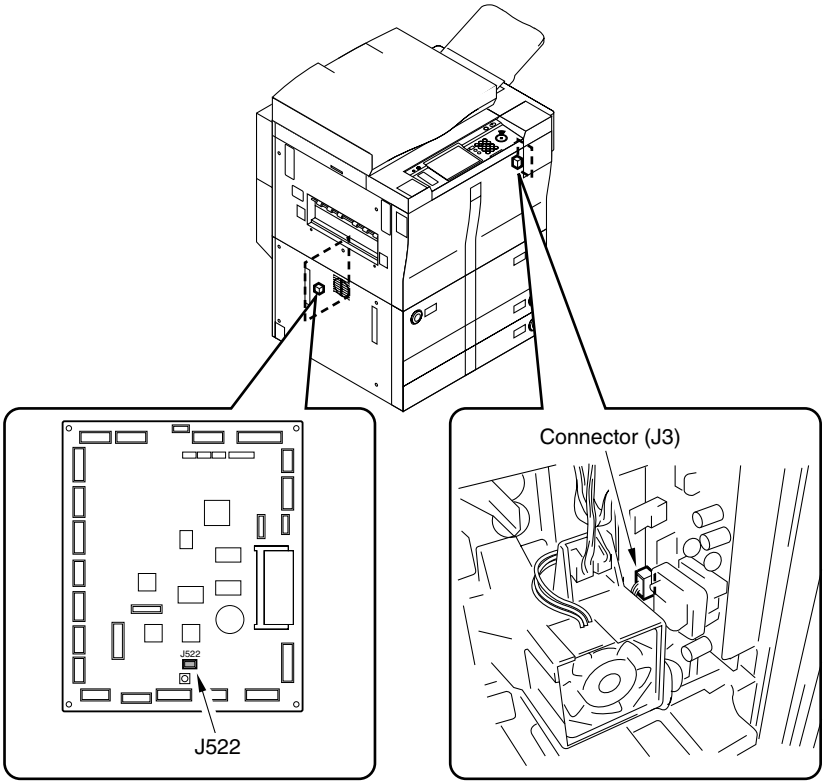


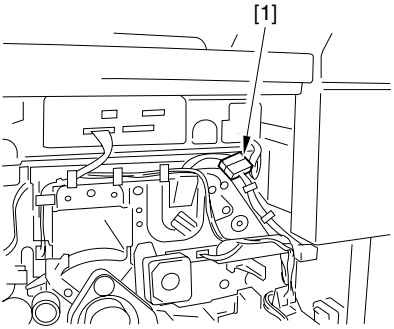
F06-207-11

3) Fit the door switch actuator in the door switch assembly, and turn on the power switch.
4) Make the following selections in service mode (COPIER>DISPLAY>DPOT>DPOT-K), and check to see that the reading of initial rotation is between 0 and 30.

If not, suspect a fault in the DC controller PCB.

5) Turn off the power switch, and detach the door switch actuator.
6) Detach the jumper wire from the DC controller PCB.
7) Connect the connector to J3 of the potential control circuit.
8) Turn on the power switch.

2. Method 2
   1) Turn off the power switch.
   2) Remove the developing assembly, and slide out the process unit.
   3) Disconnect the connector [1] of the potential sensor.



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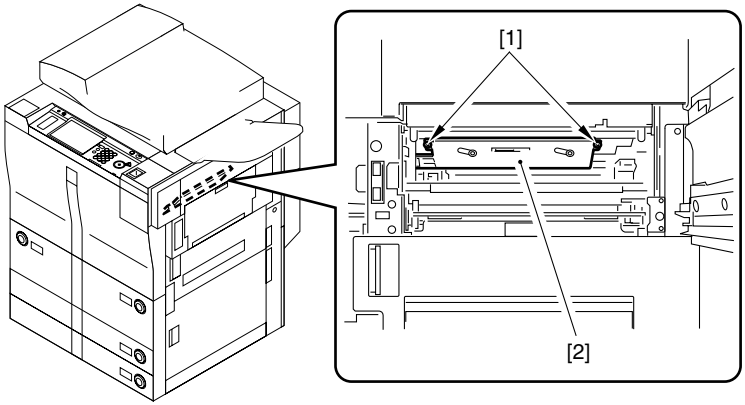
   4) Remove the two screws [1], and detach the potential sensor support plate [2].



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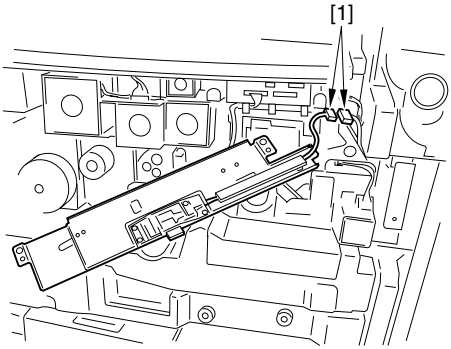
5) Put the developing assembly and the process unit back to their original positions.
6) Connect the connector [1] of the potential sensor.



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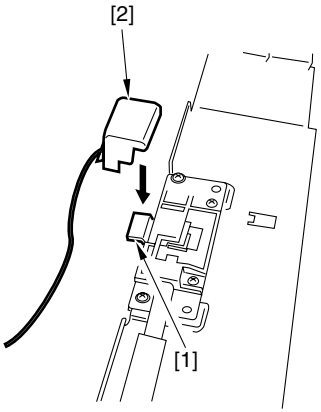
7) Fit the potential sensor checking electrode (FY9-3041) [2] to the potential sensor [1].

When fitting the checking electrode to the potential sensor, take care so that the magnet of the checking electrode will not come into contact with the potential sensor cover.



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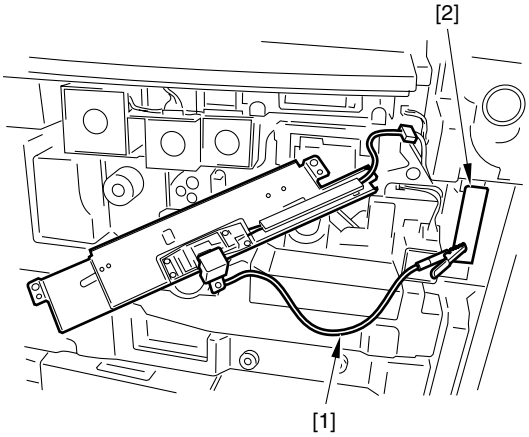
8) Connect the cable [1] of the potential sensor checking electrode to the frame (GND) [2] of the machine.

Be sure to allow enough space from the sensor window so that the clip will never come into contact with the sensor cover.



F06-207-16

9) Fit the door switch actuator into the door switch assembly.
10) Turn on the power switch.

After turning on the power switch, do not touch the potential sensor assembly.

11) Make the following selections in service mode, and check to see that the reading for initial rotation is between 0 and 30: COPIER>DISPLAY>DPOT>DPOT-K.

REF.

1. If the reading in method 1 is as indicated but the reading in method 2 is not as indicated,
   Suspect dirt on the sensor or a fault in the potential measurement unit.
2. If the readings in both methods 1 and 2 are as indicated,
   It is safe to assume that the operation and the signal path from the potential sensor unit to the microprocessor on the DC controller PCB are normal.

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12) Turn off the power switch.
13) Detach the potential sensor checking electrode.
14) Mount the potential sensor support plate.
15) Turn on the power switch.

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2.8 Conversion Table for the Potential Control System

Control (V)	Primary (μA)	Developing bias (V)	Pre-transfer (μA)	Transfer (μA)	Separation (μA)
3.00	1600	0	0	0	0
3.05	1590	3	+2	-4	+5
3.10	1580	7	+4	-8	+10
3.15	1570	11	+6	-12	+15
3.20	1560	15	+8	-16	+20
3.25	1550	18	+10	-20	+25
3.30	1540	22	+12	-24	+30
3.35	1530	26	+14	-28	+35
3.40	1520	30	+15	-32	+40
3.45	1510	33	+17	-36	+45
3.50	1500	37	+19	-40	+50
3.55	1490	41	+21	-44	+55
3.60	1480	45	+23	-48	+60
3.65	1470	48	+25	-52	+65
3.70	1460	52	+27	-56	+70
3.75	1450	56	+29	-60	+75
3.80	1440	60	+30	-65	+80
3.85	1430	63	+32	-69	+85
3.90	1420	67	+34	-73	+90
3.95	1410	71	+36	-77	+95
4.00	1400	75	+38	-81	+100
4.05	1390	78	+40	-85	+105
4.10	1380	82	+42	-89	+110
4.15	1370	86	+44	-93	+115
4.20	1360	90	+45	-97	+120
4.25	1350	93	+47	-101	+125
4.30	1340	97	+49	-105	+130
4.35	1330	101	+51	-109	+135
4.40	1320	105	+53	-113	+140
4.45	1310	108	+55	-117	+145
4.50	1300	112	+57	-121	+150
4.55	1290	116	+59	-125	+155
4.60	1280	119	+60	-129	+160
4.65	1270	123	+62	-134	+165
4.70	1260	127	+64	-138	+170
4.75	1250	131	+66	-142	+175

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Control (V)	Primary (μA)	Developing bias (V)	Pre-transfer (μA)	Transfer (μA)	Separation (μA)
4.80	1240	134	+68	-146	+180
4.85	1230	138	+70	-150	+185
4.90	1220	142	+72	-154	+190
4.95	1210	146	+74	-158	+195
5.00	1200	150	+75	-162	+200
5.05	1190	153	+77	-166	+205
5.10	1180	157	+79	-170	+210
5.15	1170	161	+81	-174	+215
5.20	1160	165	+83	-178	+220
5.25	1150	168	+85	-182	+225
5.30	1140	172	+87	-186	+230
5.35	1130	176	+89	-190	+235
5.40	1120	180	+90	-195	+240
5.45	1110	183	+92	-199	+245
5.50	1100	187	+94	-203	+250
5.55	1090	191	+96	-207	+255
5.60	1080	195	+98	-211	+260
5.65	1070	198	+100	-215	+265
5.70	1060	202	+102	-219	+270
5.75	1050	206	+104	-223	+275
5.80	1040	210	+105	-227	+280
5.85	1030	213	+107	-231	+285
5.90	1020	217	+109	-235	+290
5.95	1010	221	+111	-239	+295
6.00	1000	225	+113	-243	+300
6.05	990	228	+115	-247	+305
6.10	980	232	+117	-251	+310
6.15	970	236	+119	-255	+315
6.20	960	240	+120	-260	+320
6.25	950	243	+122	-264	+325
6.30	940	247	+124	-268	+330
6.35	930	251	+126	-272	+335
6.40	920	255	+128	-276	+340
6.45	910	258	+130	-280	+345
6.50	900	262	+132	-284	+350
6.55	890	266	+134	-288	+355
6.60	880	269	+135	-292	+360
6.65	870	273	+137	-296	+365

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Control (V)	Primary (μA)	Developing bias (V)	Pre-transfer (μA)	Transfer (μA)	Separation (μA)
6.70	860	277	+139	-300	+370
6.75	850	281	+141	-304	+375
6.80	840	285	+143	-308	+380
6.85	830	288	+145	-312	+385
6.90	820	292	+147	-316	+390
6.95	810	296	+149	-320	+395
7.00	800	300	+150	-325	+400
7.05	790	303	+152	-329	+405
7.10	780	307	+154	-333	+410
7.15	770	311	+156	-337	+415
7.20	760	315	+158	-341	+420
7.25	750	318	+160	-345	+425
7.30	740	322	+162	-349	+430
7.35	730	326	+164	-353	+435
7.40	720	330	+165	-357	+440
7.45	710	333	+167	-361	+445
7.50	700	337	+169	-365	+450
7.55	690	341	+171	-369	+455
7.60	680	345	+173	-373	+460
7.65	670	348	+175	-377	+465
7.70	660	352	+177	-381	+470
7.75	650	356	+179	-385	+475
7.80	640	360	+180	-390	+480
7.85	630	363	+182	-394	+485
7.90	620	367	+184	-398	+490
7.95	610	371	+186	-402	+495
8.00	600	375	+188	-406	+500
8.05	590	378	+190	-410	+505
8.10	580	382	+192	-414	+510
8.15	570	386	+194	-418	+515
8.20	560	390	+195	-422	+520
8.25	550	393	+197	-426	+525
8.30	540	397	+199	-430	+530
8.35	530	401	+201	-434	+535
8.40	520	405	+203	-438	+540
8.45	510	408	+205	-442	+545
8.50	500	412	+207	-446	+550
8.55	490	416	+209	-450	+555

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Control (V)	Primary (μA)	Developing bias (V)	Pre-transfer (μA)	Transfer (μA)	Separation (μA)
8.60	480	419	+210	-454	+560
8.65	470	423	+212	-459	+565
8.70	460	427	+214	-463	+570
8.75	450	431	+216	-467	+575
8.80	440	434	+218	-471	+580
8.85	430	438	+220	-475	+585
8.90	420	442	+222	-479	+590
8.95	410	446	+224	-483	+595
9.00	400	450	+225	-487	+600
9.05	390	453	+227	-491	+605
9.10	380	457	+229	-495	+610
9.15	370	461	+231	-499	+615
9.20	360	465	+233	-503	+620
9.25	350	468	+235	-507	+625
9.30	340	472	+237	-511	+630
9.35	330	476	+239	-515	+635
9.40	320	480	+240	-520	+640
9.45	310	483	+242	-524	+645
9.50	300	487	+244	-528	+650
9.55	290	491	+246	-532	+655
9.60	280	495	+248	-536	+660
9.65	270	498	+250	-540	+665
9.70	260	502	+252	-544	+670
9.75	250	506	+254	-548	+675
9.80	240	510	+255	-552	+680
9.85	230	513	+257	-556	+685
9.90	220	517	+259	-560	+690
9.95	210	521	+261	-564	+695
10.00	200	525	+263	-568	+700
10.05	190	528	+265	-472	+705
10.10	180	532	+267	-476	+710
10.15	170	536	+269	-580	+715
10.20	160	540	+270	-585	+720
10.25	150	543	+272	-589	+725
10.30	140	547	+274	-593	+730
10.35	130	551	+276	-597	+735
10.40	120	555	+278	-601	+740
10.45	110	558	+280	-605	+745

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Control (V)	Primary (μA)	Developing bias (V)	Pre-transfer (μA)	Transfer (μA)	Separation (μA)
10.50	100	562	+282	-609	+750
10.55	90	566	+284	-613	+755
10.60	80	570	+285	-617	+760
10.65	70	573	+287	-621	+765
10.70	60	577	+289	-625	+770
10.75	50	581	+291	-629	+775
10.80	40	585	+293	-633	+780
10.85	30	588	+295	-637	+785
10.90	20	592	+297	-641	+790
10.95	10	596	+299	-645	+795
11.00	0	600	+300	-650	+800

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2.9 Checking the Environment Sensor

1) Make the following selections in service mode: COPIER>DISPLAY>ANALOG. Then, check and record the temperature and humidity readings on the control panel display (data A).
   'RTMP' °C ..... data A1
   'RHUM' % ..... data A2
2) Press the Reset key twice, and turn offf the power switch.
3) Remove the environment sensor, and fit the environment sensor jig (FY9-3014) in place.
4) Turn on the power switch, and leave the machine alone for 5 min.
5) Make the following selections in service mode: COPIER>DISPLAY>ANALOG. Then, check and record the temperature and humidity readings on the control panel display (data B).
   'RTMP' °C ..... data B1
   'RHUM' % ..... data B2
6) Compare data A and data B.
   • The difference between data A1 and data B1 is 0 ±5.
   • The difference between data A2 and data B2 is 0 ±20.
   If the difference between data A and data B is not as indicated, replace the environment sensor.
7) Press the Reset key twice, and turn offf the power switch.
8) Detach the environment sensor jig, and fit the environment sensor.
9) Attach all covers.

The environment sensor jig (FY9-3014) is adjusted at the factory to a high level of accuracy. Be sure to put it in a sealed case with a drying agent for storage.

2.10 Checking the Photointerrupters

The machine's photointerrupters may be checked by a conventional meter or its service mode:

a. Using a Meter

1) Set the meter range to 30 VDC.
2) Connect the – probe of the meter to GND of the DC controller PCB.
3) Connect the + probe of the meter to the terminals (DC controller PCB) indicated in the following table.
4) Make checks as instructed.

b. Using Service Mode

1) Start service mode (COPIER>I/O), and check the appropriate address.

Turning on/off a sensor can start the machine's motor or the like. Take full care.

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Sensor	Connector / I/O address	Checks		I/O	Voltage
PS1 (iR8500) Scanner HP sensor	J1110-A1 –	In standby, move the scanner by hand.	When the light-blocking plate is at PS1, When the light-blocking plate is not at PS1,	1 0	5 V 0 V
PS3 (iR8500) Image leading edge sensor	J1110-A4 –	In standby, move the scanner by hand.	When the light-blocking plate is at PS3, When the light-blocking plate is not at PS3,	1 0	5 V 0 V
PS4 (iR8500) Copyboard cover open/closed sensor	J1110-B9 P001-4	In standby, move the copyboard cover by hand.	When the cover is closed, When the cover is opened,	1 0	5 V 0 V
PS5 Registration paper sensor	J509-A2 P001-11	In standby, put paper over PS5.	When paper is not at PS5, When paper is at PS5,	1 0	5 V 0 V
PS6 Fixing claw jam sensor	J508-B15 P001-15	In standby, put paper over PS6.	When paper is not at PS6, When paper is at PS6,	0 1	0 V 5 V
PS7 Fixing web length sensor	J508-B2 P003-3	In standby, put paper over PS7.	When the web is present, When the web is absent,	0 1	0 V 5 V
PS8 Fixing web length warning sensor	J508-B5 P003-4	In standby, put paper over the detecting lever of PS8.	When the No Web warning is issued, When the No Web warning is not issued,	1 0	5 V 0 V
PS9 Inside delivery sensor	J508-A2 P001-12	In standby, put paper over the detecting lever of PS9.	When paper is put, When paper is pulled,	1 0	5 V 0 V
PS10 Outside delivery sensor	J180L-A8 P001-13	In standby, put paper over the detecting lever of PS10.	When paper is put, When paper is pulled,	1 0	5 V 0 V
PS11 Fixing/feeding unit outlet sensor	J508-A11 P001-14	In standby, put paper over the detecting lever of PS11.	When paper is put, When paper is pulled,	1 0	5 V 0 V
PS12 Duplexing reversal sensor	J519-B6 P002-1	In standby, put paper over the detecting lever of PS12.	When paper is put, When paper is pulled,	0 1	0 V 5 V
PS13 U-turn sensor	J519-B7 P002-2	In standby, put paper over the detecting lever of PS13.	When paper is put, When paper is pulled,	1 0	5 V 0 V
PS14 Pre-confluence sensor	J519-B8 P001-3	In standby, put paper over the detecting lever of PS14.	When paper is put, When paper is not put,	1 0	5 V 0 V

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Sensor	Connector / I/O address	Checks		I/O	Voltage
PS15 Post-confluence sensor	J519-B9 P002-4	In standby, put paper over the detecting lever of PS15.	When paper is put, When paper is not put,	1 0	5 V 0 V
PS16 Reversal sensor	J508-A5 P002-0	In standby, put paper over the detecting lever of PS16.	When paper is put, When paper is not put,	1 0	5 V 0 V
PS17 Manual feed tray paper sensor	J510-B8 P004-12	In standby, move the rear partition by hand.	When paper is put, When paper is not put,	1 0	5 V 0 V
PS18 Horizontal registration sensor	J519-B11 –	In standby, move the side guide by hand.	When the light-blocking plate is not at PS18, When the light-blocking plate is at PS18,	1 0	5 V 0 V
PS19 Waste toner case full sensor	J514-A2 P003-7	In standby, put paper over the detecting lever of PS19.	When paper is put, When paper is pulled,	1 0	5 V 0 V
PS20 Deck (right) pickup sensor	J511-B2 P001-0	In standby, move the detecting lever by hand.	When the light-blocking plate is not at PS20, When the light-blocking plate is at PS20,	1 0	5 V 0 V
PS21 Deck (right) lifter sensor	J511-A6 P004-0	In standby, move the detecting lever by hand.	When the light-blocking plate is not at PS21, When the light-blocking plate is at PS21,	1 0	5 V 0 V
PS22 Deck (right) paper sensor	J511-A9 P004-8	In standby, move the detecting lever by hand.	When the light-blocking plate is not at PS22, When the light-blocking plate is at PS22,	1 0	5 V 0 V
PS23 Deck (right) open/closed sensor	J511-B5 P005-4	In standby, move the detecting lever by hand.	When the light-blocking plate is not at PS23, When the light-blocking plate is at PS23,	1 0	5 V 0 V
PS24 Deck (right) limit sensor	J511-B8 P004-14	In standby, move the detecting lever by hand.	When the light-blocking plate is not at PS24, When the light-blocking plate is at PS24,	1 0	5 V 0 V
PS25 Deck (left) pickup sensor	J518-A8 P001-1	In standby, move the detecting lever by hand.	When the light-blocking plate is not at PS25, When the light-blocking plate is at PS25,	1 0	5 V 0 V

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Sensor	Connector / I/O address	Checks		I/O	Voltage
PS26 Deck (left) feed sensor	J519-B10 P001-9	In standby, move the detecting lever by hand.	When the light-blocking plate is not at PS26, When the light-blocking plate is at PS26,	1 0	5 V 0 V
PS27 Deck (right) feed sensor	J511-B11 P001-8	In standby, move the detecting lever by hand	When the light-blocking plate is at PS27, When the light-blocking plate is not at PS27,	1 0	5 V 0 V
PS28 Fixing/feeding unit releasing lever sensor	J509-B9 P005-14	In standby, move the detecting lever by hand	When the light-blocking plate is at PS28, When the light-blocking plate is not at PS28,	1 0	5 V 0 V
PS31 Deck (left) lifter sensor	J518-A2 P004-1	In standby, move the detecting lever by hand	When the light-blocking plate is at PS31, When the light-blocking plate is not at PS31,	1 0	5 V 0 V
PS32 Deck (left) paper sensor	J518-A5 P004-9	In standby, move the detecting lever by hand	When the light-blocking plate is at PS32, When the light-blocking plate is not at PS32,	1 0	5 V 0 V
PS33 Deck (left) open/closed sensor	J518-B2 P005-5	In standby, move the detecting lever by hand	When the light-blocking plate is at PS33, When the light-blocking plate is not at PS33,	1 0	5 V 0 V
PS34 Deck (left) limit sensor	J518-B5 P004-15	In standby, move the detecting lever by hand	When the light-blocking plate is at PS34, When the light-blocking plate is not at PS34,	1 0	5 V 0 V
PS35 Manual feed inlet sensor	J510-B2 P001-10	In standby, move the detecting lever by hand	When the light-blocking plate is at PS35, When the light-blocking plate is not at PS35,	1 0	5 V 0 V
PS37 Cassette 3 pickup sensor	J515-B2 –	In standby, move the detecting lever by hand	When the light-blocking plate is at PS37, When the light-blocking plate is not at PS37,	– –	5 V 0 V
PS38 Cassette 3 lifter sensor	J515-A6 P004-2	In standby, move the detecting lever by hand	When the light-blocking plate is at PS38, When the light-blocking plate is not at PS38,	1 0	5 V 0 V

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Sensor	Connector / I/O address	Checks		I/O	Voltage
PS39 Cassette 3 paper sensor	J515-A9 P004-10	In standby, move the detecting lever by hand	When the light-blocking plate is at PS39,	–	5 V
			When the light-blocking plate is not at PS39,	–	0 V
PS40 Cassette 3 open/closed sensor	J515-B5 P004-6	In standby, move the detecting lever by hand	When the light-blocking plate is at PS40,	1	5 V
			When the light-blocking plate is not at PS40,	0	0 V
PS41 Vertical path 3 sensor	J151-B8 P001-6	In standby, move the detecting lever by hand	When the light-blocking plate is at PS41,	1	5 V
			When the light-blocking plate is not at PS41,	0	0 V
PS42 Cassette 4 pickup sensor	J517-B2 P001-3	In standby, move the detecting lever by hand	When the light-blocking plate is at PS42,	1	5 V
			When the light-blocking plate is not at PS42,	0	0 V
PS43 Cassette 4 lifter sensor	J517-A6 P004-3	In standby, move the detecting lever by hand.	When the light-blocking plate is at PS43.	1	5 V
			When the light-blocking plate is not at PS43.	0	0 V
PS44 Cassette 4 paper sensor	J517-A9 P004-11	In standby, move the detecting lever by hand.	When the light-blocking plate is at PS44.	1	5 V
			When the light-blocking plate is not at PS44.	0	0 V
PS45 Cassette 4 open/closed sensor	J517-B5 P004-7	In standby, move the detecting lever by hand.	When the light-blocking plate is at PS45.	1	5 V
			When the light-blocking plate is not at PS45.	0	0 V
PS46 Vertical path 4 sensor	J517-B8 P001-7	In standby, move the detecting lever by hand.	When the light-blocking plate is at PS46.	1	5 V
			When the light-blocking plate is not at PS46.	0	0 V
PS47 Vertical path 1 paper sensor	J502-B5 P001-4	In standby, move the detecting lever by hand.	When the light-blocking plate is at PS47.	1	5 V
			When the light-blocking plate is not at PS47.	0	0 V
PS48 Right lower cover open/closed sensor	J516-A2 P005-9	In standby, move the detecting lever by hand.	When the light-blocking plate is at PS48.	1	5 V
			When the light-blocking plate is not at PS48.	0	0 V

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Sensor	Connector / I/O address	Checks		I/O	Voltage
PS49 Vertical path 2 paper sensor	J516-B9 P001-5	In standby, move the detecting lever by hand.	When the light-blocking plate is at PS49.	1	5 V
			When the light-blocking plate is not at PS49.	0	0 V
PS51 Deck (right) paper level middle sensor	J513-B9 P004-4	In standby, move the detecting lever by hand.	When the light-blocking plate is at PS51.	1	5 V
			When the light-blocking plate is not at PS51.	0	0 V
PS52 Deck (right) paper level high sensor	J513-B12 P004-5	In standby, move the detecting lever by hand.	When the light-blocking plate is at PS52.	–	5 V
			When the light-blocking plate is not at PS52.	–	0 V
PS54 Deck (left) paper level middle sensor	J514-B9 P004-6	In standby, move the detecting lever by hand.	When the light-blocking plate is at PS54.	1	5 V
			When the light-blocking plate is not at PS54.	0	0 V
PS55 Deck (left) paper level high sensor	J514-B12 P004-7	In standby, move the detecting lever by hand.	When the light-blocking plate is at PS55.	–	5 V
			When the light-blocking plate is not at PS55.	–	0 V
PS56 Manual feed tray cover open/closed sensor	J502-A2 P005-10	In standby, move the detecting lever by hand.	When the light-blocking plate is at PS56.	1	5 V
			When the light-blocking plate is not at PS56.	0	0 V
PS58 Left inside cover open/closed sensor	J502-B2 P005-8	In standby, move the detecting lever by hand.	When the light-blocking plate is at PS58.	1	5 V
			When the light-blocking plate is not at PS58.	0	0 V
PS59 Toner cartridge cover open/closed sensor	J512-B2 P005-12	In standby, move the detecting lever by hand.	When the light-blocking plate is at PS59.	1	5 V
			When the light-blocking plate is not at PS59.	0	0 V
PS101 Original sensor	R>J5006-1 IO-P4-6	Place an original on the copyboard.	Paper is present,	0	0 V
			Paper is absent,	1	5 V
PS102 Scanner HP sensor	R>J5012-3 IO-P6-4	Move the No. 1 mirror base by hand.	Light-blocking plate is present,	1	5 V
			Light-blocking plate is absent,	0	0 V
PS103 Copyboard cover sensor	R>J5012-6 IO-P6-7	Move the sensor lever by hand.	Copyboard (ADF) is closed,	1	5 V
			Copyboard (ADF) is opened,	0	0 V

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3 Troubleshooting Image Faults

3.1 Making Initial Checks

3.1.1 Site of Installation

a. The power supply is as rated (±10%), and remains connected throughout day and night.
b. The site is not subject to high temperature/humidity (i.e., near a water faucet, water boiler, humidifier). It is not cold, near a source of fire, or subject to dust.
c. The site is not subject to ammonium gas.
d. The site is not exposed to the direct rays of the sun; otherwise, curtains are provided.
e. The site is well ventilated.
f. The machine is kept level.
g. The machine remains powered at night.

Check the site against the above requirements.

3.1.2 Checking the Originals Against Symptoms

Find out whether the problem is caused by the machine or the originals.

a. The copy density must normally be set to 5±1.
b. Originals that are reddish in tone may cause poor contrast.

Red sheets, slips.

c. Checking the Density of the Originals

- Diazo copies or transparent originals may generate copies that can be mistaken as being “foggy.”
- Originals prepared in pencil can generate “light” copies.

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3.1.3 Checking the Copyboard Cover, Copyboard Glass, and Standard White Plate for Dirt and Scratches

If any of the these parts is soiled, clean it with a solution of mild detergent or alcohol. If scratches are found, replace it.

3.1.4 Checking the Charging Wires

a. Check the charging assemblies for dirt and faults (e.g., scratches).
b. Clean the charging wires of the charging assemblies, and clean the shielding plate (If the dirt cannot be removed, replace it).
c. Check the type and the height of each charging wire.
d. Check to make sure that the charging assemblies are securely set.
e. Check the charging wire spring for rust.
f. Check the charging wire cleaning pad (each charging assembly) for displacement.

3.1.5 Checking the Developing Assembly

a. Check to make sure that the support members on both ends of the developing assembly are in contact with the drum.
b. Check to make sure that there is an even coating of toner on the surface of the developing cylinder.
c. Check the connection between the developing assembly and the machine.

3.1.6 Checking the Paper

a. Check to make sure that the paper is of a type recommended by Canon.
b. Check to make sure that the paper is not miost. Try paper fresh out of package to make copies.

3.1.7 Checking the Periodically Replaced Parts

Replace those parts that have reached the ends of their lives by referring to the Scheduled Servicing Chart and the Periodically Replaced Parts Chart.

3.1.8 Others

In winter, moving a machine from a cold to warm place can cause condensation inside it, leading to various problems.

a. Condensation on the optical system (e.g., glass, mirror, lens) can cause darker images.
b. Condensation on the charging system can cause electrical leakage.
c. Condensation on the pickup/feeding guide can cause poor paper feeding.

If condensation is noted, dry wipe the parts or leave the machine alone for 60 min while powered.

If the density is uneven (between front and rear), the image is too light, or the image is foggy, perform the Image adjustment Basic Procedure first.

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3.2 Sample Faulty Images

Note: These samples have been prepared artificially. They may appear somewhat different from actual faulty images because they have been generated using A3 copies made of the NA3 Test Sheet and reducing them to about 19%.

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3.3 Troubleshooting Faulty Images

3.3.1 The copy is too light (halftone area)

----------	**1) Perform the Image adjustment Basic Procedure. Is the problem corrected?** YES: End.
Scanner (soiling)	**2) Does the problem occur only in copy images?** YES: The cause is between the scanner and the CCD. Perform the following once again: 1. Check the standard white plate for dirt. 2. Execute the following in service mode: COPIER>FUNCTION>CCD>CCD-ADJ.
AE adjustment	**3) Make copies in AE mode. Is the density normal?** YES: End.
Developing assembly	**4) Are the support members of the developing assembly in firm contact with the drum?** NO: Check how the developing assembly is locked in position. YES: Check to make sure that the coating of toner on the developing cylinder is even.
Image processing	**5) Is the setting of the following in service mode too low: COPIER>ADJUST>DENS>DEN-ADJ?** YES: Set it to '5'.

3.3.2 The copy is too light (solid black area)
3.3.3 The copy is too light (entire face, considerable)

Paper	**1) Try fresh paper. Is the problem corrected?** YES: 1. The paper may be moist. Advise the user on the correct method of storing paper. 2. Advise the user that the use of non-recommended paper can bring about poor results.
----------	**2) Perform the Image Adjustment Basic Procedure. Is the problem corrected?** YES: End.
----------	**3) Turn off the power switch it the middle of copying operation, and open the front cover. At this time, is the toner image on the photo-sensitive drum (before transfer) more or less normal?** NO: The cause is before transfer. Go to step 8).
Transfer	**4) Is the transfer/separation charging assembly securely fitted?** NO: Fit the charging assembly securely. **5) Vary the setting of the following service mode between '1' and '3' to suit the environment, and make prints: COPIER>OPTION>BODY>FUZZY. Is the problem corrected?** YES: End (The problem is caused by the environment). NO: Set 'FUZZY' to '0', and make the checks that follow.
Transfer Transfer guide DC controller PCB	**6) Measure the resistance between the transfer guide and the feeding assembly (metal portion) with a meter. Is it 0 Ω?** YES: Check to find out if the transfer guide is in contact with a metal area (e.g., side plate of the feeding assembly). NO: Check the high-voltage transformer (HVT) and the DC controller PCB.
Development Developing assembly (position)	**7) Is the developing assembly fitted securely? Are the developing members of the developing assembly in firm contact with the photo-sensitive drum?** NO: Check how the developing assembly locking plate is mounted.

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Pre-transfer charging assembly

8) Is the pre-transfer charging assembly securely fitted?

NO: Fit the charging assembly securely.

Potential control, Photosensitive drum, Developing bias control

9) Turn off and then on the power switch. Check the setting of 'VLIM' and 'VDM' in service mode: COPIER>DISPLAY>DPOT. Are they as follows?

VL1M: from 50 to 90

VDM: from 360 to 420

NO: Check the power supply control system; if normal, replace the photosensitive drum.

YES: Check the control system of the developing bias.

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3.3.4 The copy has uneven density (darker front)
3.3.5 The copy has uneven density (lighter front)

----------	**1) Perform the Image Adjustment Basic Procedure. Is the problem corrected?** YES: End.
Developing assembly (position)	**2) Are the developing members of the developing assembly in firm contact with the photosensitive drum?** NO: Check the developing assembly locking unit.
Scanner (dirt)	**3) Clean the scanning lamp, reflecting plate, side reflecting plate, mirror, lens, and dust-proofing glass. Is the problem corrected?** YES: End.
Pre-exposure lamp	**4) Is the pre-exposure lamp ON evenly during printing operation?** NO: 1. Replace the pre-exposure lamp. 2. Replace the DC controller PCB.
Developing assembly, Charging assembly, Paper	**5) Is the developing cylinder coated evenly with toner?** NO: 1. Clean the tip f the blade of the developing assembly (dry wiping). 2. Clean the surface of the developing cylinder. 3. Check to find out if the toner inside the developing assembly is uneven. YES: 1. Clean all the charging wires once again, and check the position of each charging wire. 2. Try different paper. 3. Check the nip width of the fixing roller.

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3.3.6 The copy is foggy (entire face)

----------	
	1) Perform the Image Adjustment Basic Procedure. Is the problem corrected? YES: End.
Scanner (dirt)	
	2) Does the problem occur only in copy image? YES: The cause is between the scanner and the CCD. Check the following: 1. Scanning lamp for dirt and life. 2. Reflecting plate, mirror, lens, and standard white plate for dirt.
High-voltage DC PCB	
	3) Is the switch (SW101) on the high-voltage DC PCB set to the DOWN side? NO: Set it to the DOWN side.
Potential control system	
	4) Set '0' to the following in service mode to disable potential control: COPIER>OPTION>BODY>P0-CNT. Is the problem corrected? YES: The cause is in the potential control system. Make checks as instructed in 2.7.11 "Checking the Surface Potential Control System."
Cleaner assembly	
	5) Is the cleaning blade correctly mounted? NO: Mount the cleaning blade correctly.
Pre-exposure lamp, DC controller PCB	
	6) Is the pre-exposure lamp ON during printing operation? NO: 1. Replace the pre-exposure lamp. 2. Replace the DC controller PCB.
Developing members, Developing cylinder	
	7) Are the developing members worn? YES: Replace the developing members. NO: Replace the developing cylinder.
Developing bias control	
	8) Is the setting in the following service mode too high: COPIER>ADJUST>V-CONT>DE-OFST or OHP-OFST? YES: Try decreasing it.
Developing cylinder speed control	
	9) Is the setting of the following service mode '0': COPIER>OPTION>BODY>DEV-LOW? NO: Set it to '0'.

3.3.7 The copy is foggy in vertical direction
3.3.8 The copy has a vertical line (vertical, thick, fuzzy)

Scanner (dirt)	**1) Does the problem occur only in copy images?** YES: The cause is between the scanner and the CCD. Check the following: 1. Scanning lamp for dirt and life. 2. Reflecting plate, mirror, lens, and standard white plate for dirt.
Potential control system	**2) Set '0' to the following in service mode to disable potential control: COPIER>OPTION>BODY>P9-CNT. Is the problem corrected?** YES: The cause is in the potential control mechanisms. Make checks according to the instructions for the potential control mechanism in "2.7.11 Checking the Surface Potential Control System".
Primary charging assembly	**3) Clean the primary charging wire, grid wire, and shielding plate. Is the problem corrected?** YES: End.
Pre-exposure lamp	**4) Clean the pre-exposure lamp. Is the problem corrected?** YES: End.
Fixing assembly	**5) Using the door switch actuator, make copies with the front cover open. Turn off the power switch while paper is in the feeding assembly, and check the image. Is the image normal?** YES: The cause is after the fixing system. Check the fixing assembly upper/lower roller for dirt.
Developing assembly, Drum cleaner unit	**6) Is the developing cylinder coated with toner evenly?** NO: 1. Check the edge of the blade of the developing assembly. 2. Check to make sure that the front fixing plate of the developing magnet is secured in place. YES: 1. Remove the drum cleaning blade, and check its edge. 2. Check the drum cleaner unit.

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3.3.9 The copy has a black line (vertical, fine)

Scanner (dirt)	**1) Does the problem occur only in copy images?** YES: The cause is between the scanner and the CCD. Perform the following: 1. Check the standard white plate and mirrors for dirt. 2. Execute the following in service mode: COPIER>FUNCTION>CCD>CCD-ADJ.
Fixing system	**2) Using the door switch actuator, make copies with the front cove open. Turn off the power switch while paper is in the feeding assembly, and check the image. Is the image normal?** YES: The cause is after the fixing assembly. Check the following: 1. Fixing assembly upper roller for scratches and black line 2. Web for dirt 3. Thermistor, separation claw for dirt, reciprocating movement
Primary charging assembly (dirt)	**3) Clean the primary charging assembly. Is the problem corrected?** YES: End.
Photosensitive drum cleaner	**4) Is there paper or foreign matter trapped on the cleaning blade of the cleaner assembly?** YES: Remove the foreign matter, and clean the cleaning blade and the cleaner externals. **5) Is there a scratch on the edge of the cleaning blade? (Put your finger on the edge of the cleaning blade, and feel for a scratch.)** YES: Use the edge that has not been used (If both edges have a scratch, replace the cleaning blade).
Photosensitive drum, Developing assembly	**6) Is there a scratch or a black line in the peripheral direction of the surface of the photosensitive drum?** YES: Replace the photosensitive drum. If a scratch is found, be sure to find out its cause. NO: Check the development system.

3.3.10 The copy has white spots (vertical)
3.3.11 The copy has white lines (vertical)

Paper	**1) Try fresh paper. Is the problem corrected?** YES: The paper is moist. Advise the user on the correct method of storing paper (place).
Dust-proofing glass	**2) Clean the dust-proofing glass. Is the problem corrected?** YES: End.
Scanner (dirt)	**3) Does the problem occur only in copy images?** YES: The cause is between the scanner and the CCD. Perform the following once again: 1. Check the standard white plate for dirt. 2. Execute the following service move: COPIER>FUNCTION>CCD>CCD-ADJ.
Photosensitive drum	**4) Is there a scratch in the peripheral direction of the surface of the photosensitive drum corresponding to the problem in the image?** YES: Be sure to find out the cause of the scratch, and replace the photosensitive drum.
Developing assembly	**5) Is the developing cylinder coated with an even layer of toner?** NO: 1. Check to see if there is a collection of paper lint on the edge of the blade of the developing assembly. 2. Check to make sure that the connector at the front of the developing assembly is firmly connected to the machine.
Fixing assembly	**6) Using the door switch actuator and with the front cover open, generate a test print (PG-TYPE6, solid black).** **Turn off the switch immediately before the copy paper enters the fixing assembly, and check the image. Is the image normal?** YES: The cause is after the fixing system. Perform the following: 1. Roller offset in the fixing assembly

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Transfer/separation charging assembly, Pre-transfer charging assembly

7) Clean the transfer/separation charging assembly and the pre-transfer charging assembly. Is the problem corrected?

YES: End.

NO: Perform the following:

1. Vary the setting of the following in service mode: COPIER>OPTION>BODY>TRNSG-SW.
2. Vary the setting of the following in service mode: COPIER>OPTION>BODY>FUZZY.

Charging wire cleaner

8) Is the charging cleaning pad stopped in the middle?

YES: Execute wire cleaning user mode (‘adjust/clean’).

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3.3.12 The copy has white spots (horizontal)

Developing assembly	**1) Does the problem occur at intervals of about 58 mm or 79 mm?** YES: Perform the following: 1. Clean the developing members. 2. Dry wipe the surface of the developing cylinder. 3. If a scratch is found on the surface of the developing cylinder, replace the developing cylinder.
Drum	**2) Does the problem occur at intervals of about 340 mm?** YES: Perform the following: 1. Clean the drum. 2. If a scratch is found on the surface of the drum, replace the drum.
Paper	**3) Try fresh paper. Is the problem corrected?** YES: The paper is moist. Advise the user on the correct method of storing paper (place).
Scanner rail, Scanner cable	**4) Does the problem occur only in copy images?** YES: Perform the following: 1. Check the scanner rail for foreign matter. 2. Adjust the tension of the scanner cable.
Charging wire	**5) Does the problem occur at even intervals?** YES: Clean each charging wire.
Photosensitive drum	**6) Is there a scratch on the surface of the photosensitive drum?** NO: Clean the charging assemblies. YES: Replace the photosensitive drum.

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3.3.13 The back of the copy is soiled

Transfer guide	**1) Is the transfer guide soiled with toner?** YES: Perform the following: 1. Clean the transfer guide. 2. Check the transfer guide bias. 3. Check the developing assembly for leakage of toner.
Drum cleaner	**2) Is the paper feed assembly soiled with toner?** YES: Perform the following: 1. Clean the feeding assembly. 2. Check the drum cleaner assembly for leakage of toner.
Fixing assembly	**3) Is the fixing assembly lower roller soiled?** YES: Perform the following: 1. Clean the fixing assembly lower roller. 2. Clean the fixing assembly inlet guide. 3. Check the fixing upper roller and the web for dirt. NO: Perform the following: 1. Check the registration roller for dirt. 2. Check the delivery roller and the separation claw for dirt.

3.3.14 The copy has faulty fixing

Paper	**1) Does the paper have poor fixing (e.g., thick paper)?** YES: Start user mode, and select thick paper (common settings>paper type). Advise the user to use a specific cassette for thick paper. **2) Is the paper of a recommended type?** NO: Try a recommended type of paper. If the results are good, advise the user on the use of recommended types of paper.
Fixing assembly	**3) Does the problem occur vertically?** YES: Check the fixing assembly for a scratch and dirt. NO: Check the fixing roller for nip width.

3.3.15 The copy has a displaced leading edge (considerably large margin)
3.3.16 The copy has a displaced leading edge (large margin)
3.3.17 The copy has a displaced leading edge (no margin)

Original (position)	**1) Is the original positioned correctly?** NO: Position the original correctly.
----------	**2) Make copies using the following sources of paper. Is the displaced leading edge of each different from that of another?** **1. Left/right front deck** **2. Cassettes** **3. Side paper deck** **4. Duplexing feeding assembly** YES: Check the faulty source of paper for the following: 1. Rollers (if they reached the end of life) 2. Rollers for dirt 3. Paper path for dirt
Registration clutch, Registration roller	**3) Make adjustments in service mode: COPIER>ADJUST>FEED-ADJ>REGIST. Is the problem corrected?** NO: Perform the following: 1. Check the registration roller for deformation (wear). 2. Check the drive mechanisms of the registration roller. YES: End.

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3.3.18 The copy is wobbly

Scanner drive cable	**1) While the scanner is moving, is the cable on the cable pulley wound in multiple runs? Or, is the cable too slack or too taut?** YES: Perform the following: 1. String the cable correctly. 2. If the cable is twisted or frayed, replace it.
Scanner rail	**2) Move the No. 1 mirror base by hand. Does it move smoothly?** NO: Clean the surface of the scanner rail with solvent; then, apply a small amount of silicone oil (S-20).
Photosensitive drum	**3) Does the problem occur at intervals of about 340 mm?** YES: Perform the following: 1. Check the drum gear. 2. Check the drum ends (in contact with the developing members) for a scratch or protrusion.
Drum drive gear	**4) Does the problem occur at intervals of about 4 mm?** YES: Check the drum drive gear.
Developing gear	**5) Does the problem occur at intervals of about 2 mm?** YES: Check the developing assembly.
Drum drive system	**6) Does the problem occur at intervals of about 10 mm?** YES: Check the cleaner assembly. Check the drum drive system.

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3.3.19 The copy is foggy horizontally

----------	**1) In Direct copy mode, does the problem occur at the same location at all times?** YES: Go to step 3).
Scanning lamp, Lamp regulator	**2) While the scanner is moving forward, does the scanning lamp flicker?** YES: Check the scanning lamp and the lamp regulator.
Scanner (wobbling), Feeding assembly (wobbling)	**3) Make a reduced copy, and compare it against a Direct copy. Is the problem at different locations?** NO: Check the scanner. YES: Check the feeding system.

3.3.20 The copy has poor sharpness

Copyboard glass	**1) Is there oil or the like on the copyboard glass?** YES: Clean the copyboard glass.
Mirror (position)	**2) Is the horizontal reproduction ratio of Direct copies as indicated?** NO: Adjust the distance between No. 1 mirror and No. 2 mirror.
Scanner (dirt)	**3) Clean the scanning lamp, reflecting plate, mirror, lens, and dust-proofing glass. Is the problem corrected?** YES: End.
Photosensitive drum, Lens drive assembly	**4) Try replacing the photosensitive drum. Is the problem corrected?** YES: End. NO: Check the lens drive assembly for movement.

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3.3.21 The copy is blank

Developing assembly (engagement)

1) During printing operation, is the developing assembly locked to the photosensitive drum?

NO: Check the locking mechanism of the developing assembly.

Developing assembly drive mechanism

2) During printing, is the developing assembly rotating?

NO: Check the developing assembly drive mechanism.

Transfer charging assembly

3) Is the transfer charging assembly fitted fully?

NO: Fit it fully.

4) Is leakage noted in the transfer charging assembly?

YES: Check the transfer charging assembly.

CCD unit, Relay PCB

5) Is the voltage supplied to the CCD unit as rated?

NO: Perform the following:

1. Check the relay PCB.
2. Check the power path between the CCD unit and the relay PCB; if normal, replace the CCD unit.

Laser unit, Image processor PCB, Drum unit

6) Is the laser output normal?

NO: Perform the following:

1. Replace the laser unit.
2. Replace the image processor PCB.

YES: Replace the drum unit.

7) Are the connector J1452 (found to the left of the controller box) and the connector J1302 of the laser driver PCB firmly connected?

NO: Fit them securely (so that they are locked in place).

YES: Replace the drum unit

Developing bias connector

8) Is the connector (on the machine rear) for the developing bias connected?

NO: Connect the connector.

3.3.22 The copy is solid black

Scanning lamp	**1) Is the scanning lamp ON?** NO: See "4.1.88 The scanning lamp fails to go ON."
Pre-exposure lamp	**2) Is the connector of the pre-exposure lamp connected?** NO: Connect it.
Primary charging assembly	**3) Make the following selections in service mode: COPIER>DISPLAY>DPOT. Is the reading of 'VDM' between 360 and 420?** NO: Check the primary charging assembly.
----------	**4) Is the connection between the following PCBs normal?** **1. Image processor PCB** **2. CCD unit** **3. DC controller PCB** **4. Relay PCB** NO: Connect them properly.
Reader controller PCB, CCD unit	**5) Does the problem occur only in copy images?** NO: Perform the following: 1. Replace the reader controller PCB. 2. Replace the DC controller PCB. YES: Replace the CCD unit.

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4 Troubleshooting Malfunctions

4.1 Troubleshooting Malfunctions

If you must remove and mount a sensor, pay attention to the orientation/position of the spring used to lock its detecting lever in place while doing so.

4.1.1 E000

Thermistor	**1) Reset E000, and turn off and then on the power switch. Make the following selections in service mode: COPIER>DISPLAY>ANALOG. Is overheating noted for both 'FIX-C' and 'FIX-E'?** YES: The thermistor is faulty; check the following: • Thermistor for mounting condition • Thermistor surface for dirt • Connection
DC controller PCB	**2) Turn offf the power switch, cooling the fixing upper roller sufficiently, and turn on the power switch. Reset E000, and turn off and then on the power switch. Make the following selections in service mode: COPIER>I/O>DC-CON. Are bit 0 and bit 1 of IO-P12 '0'?** YES: Replace the DC controller PCB.
Heater (open circuit), AC driver PCB	**3) Is the electrical continuity of each heater normal?** NO: Replace the heater. YES: Check the wiring; if normal, replace the AC driver PCB.

4.1.2 E001

AC driver PCB (short circuit)

1) Turn off the power switch. While the fixing upper roller is cooling, check the surface of each thermistor for dirt, mounting condition, and connection.
Turn on the power switch, and make the following selections in service mode to reset E001: COPIER>FUNCTION>CLEAR>ERR. Then, turn off and then on the power switch.
Make the following selections in service mode: COPIER>DISPLAY>ANALOG. Are readings of both 'FIX-C' and 'FIX-E' 200°C or higher?

YES: Replace the AC driver PCB.

Thermistor (TH1/TH2), DC controller PCB

2) Replace the thermistor. Is the problem corrected?

YES: End.

NO: Replace the DC controller PCB.

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4.1.3 E002
4.1.4 E003

----------	**1) Turn on the power switch, and make the following selections in service mode to reset E002/E003: COPIER>FUNCTION>CLEAR>ERR. Then turn off and then on the power switch. Is any of the following true?** **• The fixing heater fails to go on.** **• E002 or E003 is indicated.** YES: See the discussions of the respective item.
----------	**2) Is the contact of the connectors on the DC controller PCB and the connector (J505) inside the fixing assembly good? In addition, is the wiring from the thermistor to the DC controller PCB good?** NO: Correct the connection.
Main thermistor (TH1)	**3) Is the thermistor in even contact with the fixing upper roller?** NO: Mount it properly.
Main thermistor (TH1; dirt)	**4) Clean the contact face of the thermistor. Is the problem corrected?** YES: End.
Main thermistor (TH1)	**5) Try replacing the thermistor. Is the problem corrected?** YES: End.
Fixing heater, DC controller PCB	**6) Try replacing the heater. Is the problem corrected?** YES: End. NO: Replace the DC controller PCB.

4.1.5 E004

AC driver PCB, DC controller PCB	**1) Try replacing the AC driver PCB. Is the problem corrected?** YES: End. NO: Replace the DC controller PCB.

4.1.6 E005

Web	**1) Is the web of the fixing assembly wound?** YES: Replace the web.
Service mode	**2) After replacing the fixing web, has the fixing web counter been reset in service mode (COPIER>COUNTER>MISC>FIX-WEB) ?** NO: Reset the counter.
Web detecting lever	**3) Is the web detecting lever positioned correctly?** NO: Correct the position of the lever.
DC controller PCB, Sensor	**4) Is the web absent sensor (PS7) normal? (See 2.10 "Checking the Photointerrupters.")** YES: Replace the DC controller PCB. NO: Replace the sensor.

4.1.7 E010

----------	**1) Is the connector of the main motor connected?** NO: Connect the connector.
----------	**2) Is the connector (J1720) of the relay PCB connected?** NO: Connect the connector
Relay PCB	**3) Close all covers. When the power switch is turned on, is the voltage between J1720-1 and –2 on the relay PCB about 38 V?** NO: Replace the relay PCB.
DC controller PCB, Main motor (M1)	**4) When the Start key is pressed, does the voltage between J514-B5 (+) and -B3 (–) change from 0 to about 5 V?** NO: Replace the DC controller PCB. YES: Replace the main motor.

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4.1.8 E012

Relay PCB, Drum motor (M0)	**1) Turn on the power stitch, and check to see that all covers are closed. Is the voltage between J1721-9 and -10 on the relay PCB 38 V?** NO: Check the connection of the cable to the relay PCB; if normal, replace the relay PCB.
DC controller PCB	**2) When the Start key is pressed, does the voltage between J512-B10 (+) and J512-B8 (–) on the DC controller PCB change from 0 to 5 V?** NO: Check the cable connection to the DC controller PCB; if normal, replace the DC controller PCB.
Connector	**3) Are the connectors J601 and J602 on the drum motor connected firmly?** NO: Connect the connectors. YES: Replace the drum motor.

4.1.9 E013

Waste toner feedscrew (locking)	**1) Does the waste toner feedscrew drive gear push the waste toner feedscrew lock detecting switch (MSW2)?** NO: It is likely that the feedscrew inside the waste toner pipe is prevented from rotating. Remove the waste toner pipe, and try turning the screw by hand. If it turns easily, mount it back again and see if the problem is corrected. Otherwise, replace the waste toner pipe, and remove the cause.
MSW2, DC controller PCB	**2) Make the following selections in service mode: COPIER>I/O>DC-CON>. Is bit 6 of P003 '0' (toner clogging)?** YES: Replace MSW2. NO: Replace the DC controller PCB.

4.1.10 E014

----------	**1) Are the connectors J651 and J652 of the fixing motor connected?** NO: Connect the connectors.
Relay PCB	**2) Check to make sure that all covers are closed. When the power switch is turned on, is the voltage 38 V between J651-1 and -2 of the fixing motor?** NO: Replace the relay PCB.
DC controller PCB, Fixing motor (M3)	**3) When the Start key is pressed, does the voltage between J508-A18 (+) and J508-A16 (–) change from 0 to about 5 V?** NO: Replace the DC controller PCB. YES: Replace the fixing motor.

4.1.11 E015

----------	**1) Are the connectors J621 and J622 of the pickup motor connected?** NO: Connect the connectors.
Relay PCB	**2) Check to make sure that all covers are closed. Is the voltage between J1721-11 and -12 of the relay PCB 38 V?** NO: Replace the relay PCB.
DC controller PCB, Pickup motor (M2)	**3) When the Start key is pressed, does the voltage between J513-A3 (+) and J513-A1 (–) on the DC controller PCB change from 0 to about 5 V?** NO: Replace the pickup controller PCB. YES: Replace the pickup motor.

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4.1.12 E019

Waste toner case (full)	**1) Is the waste toner case full of toner?** YES: Dispose of the toner inside the waste toner case.
Water toner case base	**2) Does the waste toner case base move smoothly?** NO: Correct the base.
Connector	**3) Is the connector (J514) on the DC controller PCB connected firmly?** NO: Connect it firmly.
Waste toner full sensor, DC controller PCB	**4) Try replacing the waste toner full sensor (PS19). Is the problem corrected?** YES: If the cable connection up to the DC controller PCB is normal, replace the waste toner full sensor (PS19). NO: Replace the DC controller PCB.

4.1.13 E020

Toner feedscrew, Toner sensor (TS3)	**1) Remove the developing assembly, and detach the top cover of the developing assembly. Is there toner inside the developing assembly?** YES: Check the toner feedscrew inside the developing assembly for rotation; if normal, replace the toner sensor (TS3).
----------	**2) Make the following selections in service mode: COPIER>FUNCTION>PART-CHK; then, check the operation of the hopper drive clutch (CL1). Does the clutch operate normally?** NO: Check the connection; if normal, replace the clutch.
Hopper drive clutch (CL1)	**3) Check the operation of the hopper motor (M18) in reference to 'MTR'. Does the motor operate normally?** NO: Check the connection; if normal, replace the motor. YES: Check the following: • Magnet roller inside the hopper for rotation • Area between hopper and inside the developing assembly for toner clogging

4.1.14 E025

----------	**1) Is the toner inside the cartridge uneven?** YES: Rock the cartridge so that the toner inside it is even.
Connector	**2) Is the connector (J512) on the DC controller PCB connected firmly?** NO: Connect it firmly.
Drive system, Toner feed motor (M6; inside cartridge)	**3) Does the drive mechanism for toner feed inside the cartridge operate smoothly?** NO: Correct the mechanism. YES: Replace the toner feed motor inside the cartridge.

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4.1.15 E032

Connector

1) Is the copy data controller/NE controller connected firmly? (connector J525 and J526 on the DC controller PCB)

NO: Connect it firmly.

DC controller PCB, Copy data controller/NE controller

2) Try replacing the copy data controller/NE controller. Is the problem corrected?

NO: Replace the DC controller PCB.

YES: End.

4.1.16 E043

Side deck driver PCB

1) Is there electrical continuity between the connectors on the side deck driver PCB indicated inthe following table?

Signal	Connectors
38VU	J106-1 ◄⟷► J101-1
0VU	J106-2 ◄⟷► J101-2

NO: Replace the side deck driver PCB.

Deck main motor (M101), DC controller PCB

2) Try replacing the deck main motor (M101) of the side deck. Is the problem corrected?

YES: End.

NO: Check the harness from the DC controller PCB to the motor; if normal, replace the DC controller PCB.

4.1.17 E051

Horizontal registration home position sensor (PS18)	**1) Is the horizontal registration home position sensor (PS18) normal?** NO: Replace PS18.
Horizontal registration motor (M15)	**2) Disconnect J3603 of the stackless feed driver PCB. Is there electrical continuity between the following pins of the jacks on the motor side?** **J3603-B4, -B5, -B3** **J3603-B2, -B6, -B1** NO: Replace the horizontal registration motor (M15).
Manual feed tray open/closed detecting switch (MSW5)	**3) Is the mounting condition of the manual feed tray open/closed detecting switch (MSW5) normal?** NO: Mount the switch properly.
Stackless feed driver PCB, DC controller PCB	**4) Try replacing the stackless drive PCB. Is the problem corrected?** YES: End. NO: Replace the DC controller PCB.

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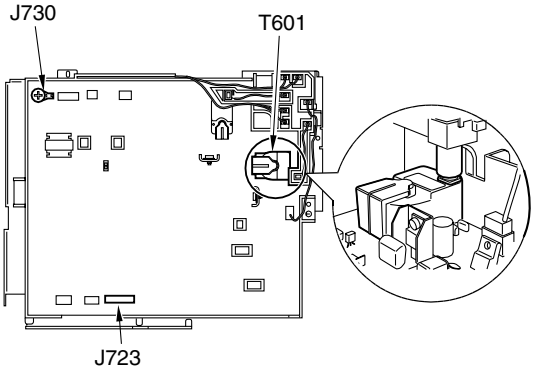
4.1.18 E065

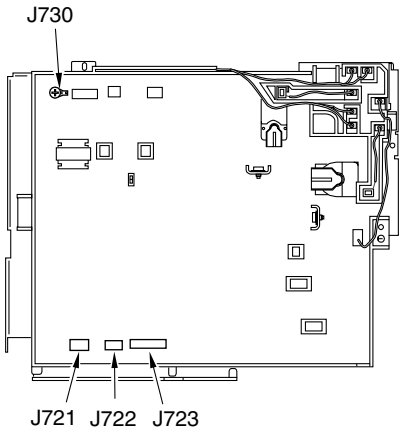
Primary charging assembly (dirt)	**1) Is the primary charging assembly soiled with paper lint or the like?** YES: Clean the primary charging assembly.
Mounting condition	**2) Is the primary charging assembly mounted properly?** NO: Mount the assembly properly.
Contact	**3) Is the contact of the primary charging assembly soiled with dirt?** NO: Correct the problem?
Connection	**4) Is the connection of the following on the HV-DC controller PCB secure? (See F06-401-01)** **• T601** **• J723** **• J730** NO: Connect the connectors securely.
Wiring, HV-DC controller PCB	**5) Check the wiring/connection from the HV-DC PCB to the primary charging assembly. Is it normal?** NO: Correct the wiring/connection. YES: Replace the HV-DC PCB.



F06-401-01

4.1.19 E067

Mounting condition	
	1) Are the primary charging assembly, pre-transfer charging assembly, and transfer/separation charging assembly mounted securely? NO: Mount them securely.
Connection	
	2) Are the following connectors on the HV-DC PCB connected normally and the screws fitted normally? (See F06-401-02.) **• J721** **• J723** **• J730** NO: Connect the connectors securely.
Wiring	
	3) Is the wiring from the HV-DC PCB to each charging assembly and the wiring/connection from the HV-AC PCB to each charging assembly normal? NO: Correct the wiring/connection.
HV-AC PCB, HV-DC PCB	
	4) Disconnect the connector (J722) from the HV-DC PCB, and make copies. Is E067 indicated? NO: Replace the HV-AC PCB, and connector J722 to end the work. YES: Replace the HV-DC PCB, and connector J722 to end the work.



F06-401-02

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4.1.20 E068

Mounting condition

1) Is the transfer/separation charging assembly mounted securely?

NO: Mount the assembly securely.

Connection

2) Are the following connectors on the HV PCB and the HV-AC PCB normal? Further, are the screws fitted properly? (See F06-401-03.)

HV-DC PCB	HV-AC PCB
• J722	• J741
• J723	• J742
• J730	
• J734	

NO: Correct the connection.

Separation charging assembly

3) Disconnect the connector T1-S from the transformer assembly of the HV-AC PCB, and make copies. Is E068 indicated? (See F06-401-04.)

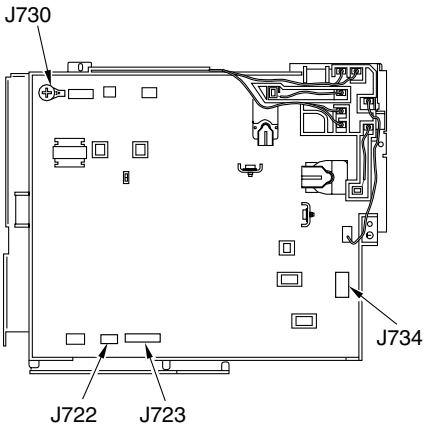
NO: Clean the HV-AC PCB, and make copies. If E068 is indicated, replace the separation charging assembly.

Pre-transfer charging assembly, HV-DC PCB

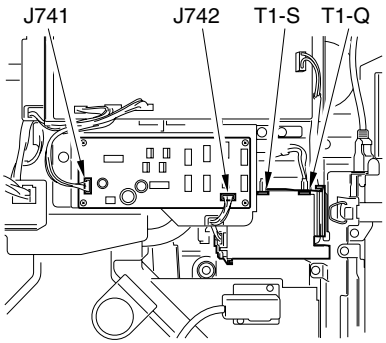
4) Disconnect the connector T1-Q from the transformer assembly of the HV-AC PCB, and make copies. Is E068 indicated? (See F06-401-04.)

NO: Clean the pre-transfer charging assembly, and make copies. If E068 is indicated, replace the pre-transfer charging assembly.

YES: Replace the HV-AC PCB.



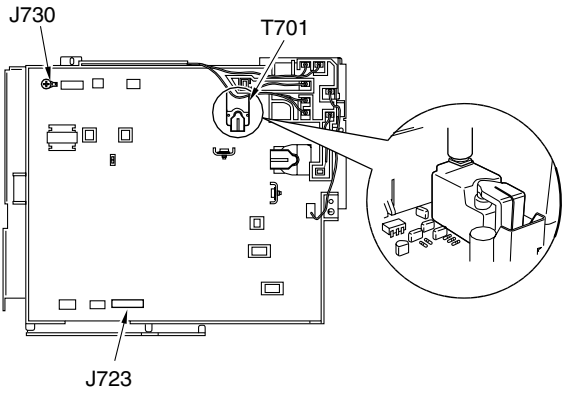
F06-401-03



F06-401-04

4.1.21 E069

Mounting condition	**1) Is the transfer/separation charging assembly mounted securely?** NO: Mount it securely.
Connection	**2) Are the following connectors on the HV-DC PCB normal? Further, are the screws fitted normally?** **• T701** **• J723** **• J730** NO: Correct the connection.
Wiring	**3) Is the wiring from the HV-DC PCB to the transfer/separation charging assembly (transfer charging assembly side) normal?** NO: Correct the wiring.
HV-DC PCB, Transfer/serration charging assembly	**4) Try replacing the HV-DC PCB. Is the problem corrected?** NO: Replace the transfer/separation charging assembly. YES: End.



F06-401-05

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4.1.22 E100

BD PCB

1) Make the following selections in service mode: COPIER>DISPLAY>DPOT. Is the reading of 'VLIM' between 50 and 90?

YES: Check the connection between the BD PCB and the laser driver PCB/DC controller PCB and the position of the BD PCB. If normal, replace the BD PCB.

Laser output, DC controller PCB

2) Is the reading of 'VDM' between 360 and 420?

YES: Check the following:
- Laser output
- Laser optical path for foreign matter

NO: Replace the DC controller PCB.

4.1.23 E110

Connector

1) Is the connector J762 on the laser scanner motor driver PCB connected securely?

NO: Connect the connector securely.

Connector

2) Is the connector J503 on the DC controller PCB connected securely?

NO: Connect the connector securely.

Laser scanner unit, DC controller PCB

3) Try replacing the laser scanner unit. Is the problem corrected?

NO: End.

YES: Replace the DC controller PCB.

4.1.24 E111

Foreign matter	**1) Is there foreign matter that prevents the rotation of the fan near the laser scanner fan?** YES: Remove the foreign matter.
Connector	**2) Is the connector J503 on the DC controller PCB connected securely?** NO: Connect it securely.
Laser scanner fan (FM14), DC controller PCB	**3) Try replacing the laser scanner fan (FM14). Is the problem corrected?** YES: End. NO: Replace the DC controller PCB.

4.1.25 E121-0001

Foreign matter	**1) Is there foreign matter that prevents the rotation of the fan around the scanner cooling fan?** YES: Remove the foreign matter.
Connector	**2) Is the connector J503 on the Reader controller PCB connected securely?** NO: Connect the connector securely.
Scanner cooling fan (FM3), Reader controller PCB	**3) Try replacing the scanner cooling fan (FM3). Is the problem corrected?** NO: End. YES: Replace the Reader controller PCB.

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4.1.26 E121-0002

Foreign matter	**1) Is there foreign matter that prevents the rotation of the fan around the laser drive cooling fan?** YES: Remove the foreign matter.
Connector	**2) Is the connector J503 on the DC controller PCB connected securely?** NO: Connect it securely.
Laser driver cooling fan (FM5), DC controller PCB	**3) Try replacing the laser driver cooling fan (FM5). Is the problem corrected?** YES: End. NO: Replace the DC controller PCB.

4.1.27 E202 (The keys in the control panel become locked)

----------	**1) When 'E202' is indicated, is the scanner in home position?** NO: See 4.1.86 "The scanner fails to move forward."
Connector	**2) Is the connector J1702 of the relay PCB connected properly?** NO: Connect the connector properly.
Scanner home position sensor (PS1), Reader controller PCB	**3) Is the scanner home position sensor (PS1) normal? (See 2.10 "Checking the Photointerrupters.")** YES: Check the wiring from the reader controller PCB to PS1; if normal, replace PS1. NO: Replace the reader controller PCB.

4.1.28 E204 (The keys in the control panel become locked)

----------	**1) Does the scanner move forward when the Start key is pressed?** NO: See 4.1.86 "The scanner fails to move forward."
Image leading edge sensor (PS3), Reader controller PCB	**2) (See 2.10 "Checking the Photointerrupters.")** NO: Check the wiring form the Reader controller PCB to PS3; if normal, replace PS3. YES: Replace the Reader controller PCB.

4.1.29 E211
4.1.30 E215

Connector	**1) Are the connectors J852 and J853 on the light control PCB connected securely?** NO: Connect the connectors securely.
Fluorescent lamp heater	**2) Try replacing the fluorescent lamp heater. Is the problem corrected?** YES: End.
Light control PCB, Reader controller PCB	**3) Try replacing the light control PCB. Is the problem corrected?** YES: End. NO: Replace the Reader controller PCB.

4.1.31 E218 (Indicated if iR8500)

Mounting condition	**1) Is the fluorescent lamp mounted securely?** NO: Mount it securely.
Connector	**2) Are the connectors J1002 and J1003 on the inverter PCB connected securely?** NO: Connect the connectors securely.
Fluorescent lamp, Reader controller PCB	**3) Try replacing the fluorescent lamp. Is the problem corrected?** YES: End. NO: Replace the reader controller PCB. **4) Is the connector J1702 on the the relay PCB connected properly?** NO: Connect it properly.

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4.1.32 E219 (Indicated if iR8500)
4.1.33 E220 (iR8500)
4.1.34 E222 (Indicated if iR8500)

Connector	**1) Are the connectors J852 and J853 on the light control PCB connected securely?** NO: Connect the connectors securely.
Fluorescent heater	**2) Try replacing the fluorescent heater. Is the problem corrected?** YES: End.
Light control PCB, Reader controller PCB	**3) Try replacing the light control PCB. Is the problem corrected?** YES: End. NO: Replace the Reader controller PCB.

4.1.35 E220 (iR7200)

Wiring	**1) Is the wiring from the xenon lamp to the reader controller PCB normal?** NO: Disconnect and then connect the connectors; correct or replace the wiring.
Inverter PCB, Reader controller PCB	**2) Try replacing the lamp inverter PCB. Is the problem corrected?** YES: End. NO: Replace the reader controller PCB.

4.1.36 E225 (iR7200)

Xenon lamp (LA2)	**1) Try replacing the xenon lamp. Is the problem corrected?** YES: End.
CCD unit, Reader controller PCB	**2) Try replacing the CCD unit. Is the problem corrected?** YES: End. NO: Check the wiring; if normal, replace the reader controller PCB.

4.1.37 E226 (iR8500)

Foreign matter	**1) Is there foreign matter that prevents the rotation of the fan around the scanner cooling fan?** YES: Remove the foreign matter.
Connector	**2) Is the connector J503 on the Reader controller PCB connected securely?** NO: Connect the connector securely.
Scanner cooling fan (FM3), Reader controller PCB	**3) Try replacing the scanner cooling fan (FM3). Is the problem corrected?** NO: End. YES: Replace the Reader controller PCB.

4.1.38 E240

DC controller PCB	**1) Turn off and then on the power switch. Is the problem corrected?** YES: End. NO: Replace the DC controller PCB.

4.1.39 E241 (iR8500)

Mounting condition	**1) Is the original orientation detection PCB mounted securely?** NO: Mount the PCB securely.
Original orientation detection PCB, Reader controller PCB	**2) Try replacing the original orientation detection PCB. Is the problem corrected?** YES: End. NO: Replace the DC controller PCB.

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4.1.40 E243

Main controller PCB	**1) Turn off and then on the power switch. Is the problem corrected?** YES: End. NO: Replace the Main controller PCB.
Control panel PCB	**2) Try replacing the control panel PCB. Is the problem corrected?** YES: End.

4.1.41 E248 (iR7200)

EEPROMs	**1) Are the EEPROMs connected securely to the sockets of the reader controller PCB?** NO: Connect them securely.
Data (faulty)	**2) Excute the following in service mode: COPIER>FUNCTION>CLEAR>R-CON. Is the problem corrected?** **Thereafter, be sure to enter the service mode data.** YES: Check the operation; if normal, end the work.
EEPROM, Reader controller PCB	**3) Try replacing the EEPROM. Is the problem corrected?** **Thereafter, be sure to enter the service mode data newly.** YES: End. NO: Check the wiring; if normal, replace the reader controller PCB.

4.1.42 E251 (Indicated if iR8500)

Foreign matter	**1) Is there foreign matter that prevents the rotation of the fan around the inverter cooling fan?** YES: Remove the foreign matter.
Connector	**2) Is the connector J1110 on the Reader controller PCB connected securely?** NO: Connect the connector securely.
Inverter cooling fan (FM9), Reader controller PCB	**3) Try replacing the inverter cooling fan (FM9). Is the problem corrected?** NO: End. YES: Replace the Reader controller PCB.

4.1.43 E302

Connector	**1) Are the connectors on the CCD PCB and the Reader controller PCB connected securely?** NO: Connect the connectors securely.
CCD PCB, Reader controller PCB	**2) Try replacing the CCD PCB. Is the problem corrected?** YES: End. NO: Replace the Reader controller PCB.

4.1.44 E315

Reader controller PCB	**1) Try replacing the reader controller PCB. Is the problem corrected?** YES: End.
Main controller PCB	**2) Tyr replacing the main controller PCB. Is the problem corrected?** YES: End.

4.1.45 E320

Connector	**1) Are the connectors on the CCD PCB and the Reader controller PCB connected securely?** NO: Connect the connectors securely.
CCD PCB, Rreader controller PCB	**2) Tyr replacing the CCD PCB. Is the prpblem corrected?** YES: End. NO: Replace the Reader controller PCB.

4.1.46 E400 (Indicated if iR8500)

Communication cable	**1) Is the connection of the cable between the ADF and the machine normal?** NO: Correct the connection.
ADF controller PCB	**2) Tyr replacing the ADF controller OCB. Is the problem corrected?** YES: End.

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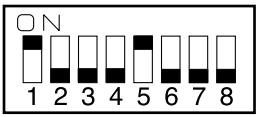
4.1.47 E402 (Indicated if iR8500)

---

1) Set the DIP switch (SW1) on the ADF controller PCB as follows:



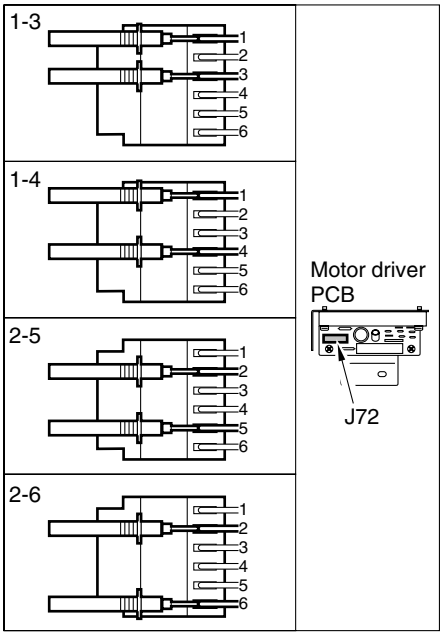
F06-401-06

Press the push switch (SW2). Does the belt motor (M2) rotate? (To stop, press the push switch (SW2) once again.)

YES: Go to step 3.

Belt motor (M2)

2) Disconnect the connector (J72) on the belt motor driver PCB. Set the meter range to × 1Ω, and connect the meter probes as indicated. Is the resistance about 1.1Ω for each?



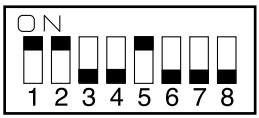
F06-401-07

NO: Replace the belt motor (M2).

Belt motor clock sensor (PI1)	**3) Set the meter range to 10 VDC. Turn the belt motor by hand. Does the voltage between J12-3 (+) and J12-2 (–) on the ADF controller PCB change between 0V and 5 V?** NO: Replace the belt motor clock sensor (PI1).
Cable	**4) Is the cable between the belt motor driver PCB and the ADF controller PCB connected properly?** NO: Connect the cable correctly.
Belt motor driver PCB ADF controller PCB	**5) Replace the belt motor driver PCB. Is the problem corrected?** YES: Replace the belt motor driver PCB. NO: Replace the ADF controller PCB.

4.1.48 E404 (Indicated if iR8500)

----------	**1) Set the DIP switch (SW1) on the ADF controller PCB as indicated.**



F06-401-08

Press the push switch (SW2). Does the delivery motor (M5) rotate? (To stop, press the push switch (SW2) once again.)

YES: Go to step 3.

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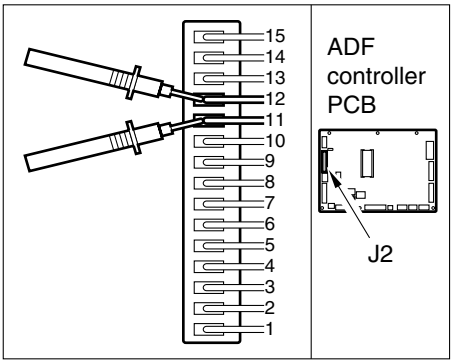
Delivery motor (M5)

2) Disconnect the connector (J2) from the ADF controller PCB. Set the meter range to × 1Ω, and connect the meter probes as indicated. Is the resistance about 15Ω ?



F06-401-09

NO: Replace the delivery motor (M5). After replacement, be sure to perform "Adjusting the Sensor and the Delivery Motor."

Delivery Motor Clock Sensor (PI11)
ADF controller PCB

3) Set the meter range to 10 VDC. Turn the delivery motor by hand. Does the voltage between connectors J3-2 (+) and J3-1 (–) on the ADF controller PCB change between 0 V and 5 V?

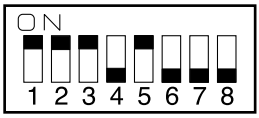
NO: Replace the delivery motor clock sensor (PI11).

YES: Replace the ADF controller PCB.

4.1.49 E405 (Indicated if iR8500)

---

1) Set the DIP switch (SW1) on the ADF controller PCB as follows:



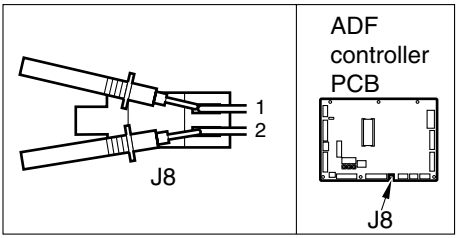
F06-401-10

Press the push switch (SW2). Does the separation motor rotate?

YES: Go to step 3.

Separation motor (M4)

2) Disconnect the connector (J8) of the ADF controller PCB. Set the meter range to × 1Ω, and connect the connector as indicated. Is the resistance about 5.0Ω ?



F06-401-11

NO: Replace the separation motor (M4).

Separation motor clock sensor (PI2)

ADF controller PCB

3) Set the meter range to 10 VDC.
Rotate the separation motor by hand. Is the voltage between connectors J12-5 (+) and J12-4 (–) on the ADF controller PCB change between 0 V and 5 V?

NO: Replace the separation motor clock sensor (PI2).

YES: Replace the ADF controller PCB.

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4.1.50 E410 (Indicated if iR8500)

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1) Set the DIP switch (SW1) on the ADF controller PCB as indicated.

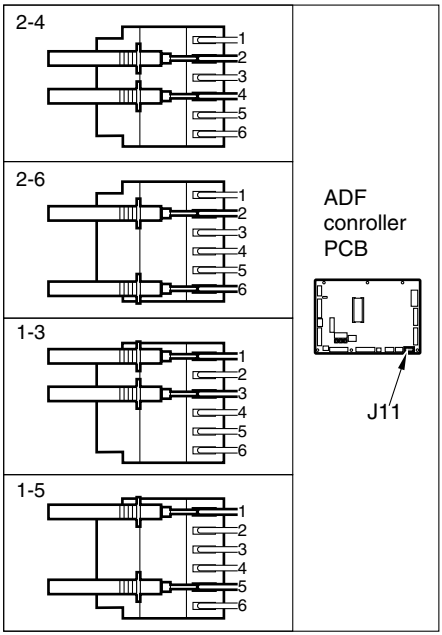
F06-401-12

Press the push switch (SW2) and press the push switch (SW3/SW4). Does the motor (M3) rotate?
(To stop, press the push switch (SW2) once again.)

YES: Go to step 3.

Pickup motor (M3)

2) Disconnect the connector (J11) of the ADF controller PCB. Set the meter range to × 1Ω, and connect the meter probes as indicated. Is the resistance about 74Ω for each?



F06-401-13

NO: Replace the pickup motor (M3).

Pickup roller height sensor 1 (PI8)	**3) Set the meter range to 10 VDC. Move the pickup roller unit (rear) up and down by hand. Does the voltage between connectors J14-A8 (+) and J14-A7 (–) on the ADF controller PCB change between 0 V and 5 V?** NO: Replace the pickup roller height sensor 1 (PI8).
Pickup roller height sensor 2 (PI9)	**4) Set the meter range to 10 VDC. Move the pickup roller unit (font) up and down by hand. Does the voltage between J14-A11 (+) and J14-A10 on the ADF controller PCB alternate between 0 and 5 V?** NO: Replace the pickup roller height sensor 2 (PI9).
Pickup roller home position sensor (PI7)	**5) Set the meter range to 10 VDC.** **Move the pickup roller unit (front) up and down by hand. Is the voltage between J14-A5 (+) and J14-A4 (–) on the ADF controller PCB about 5 V?** NO: Replace the pickup roller home position sensor (PI7).
ADF controller PCB	**6) Replace the ADF controller PCB. Is the problem corrected?** YES: Replace the ADF controller PCB.

4.1.51 E412 (Indicated if iR7200)

Foreign object	**1) Is there a foreign object that prevents the rotation of the coolong fan?** YES: Remove the foreign object.
Connector	**2) Is the connector (J11) on the ADF controller PCB connected firmly?** NO: Connect it securely.
Cooling fan (FM1), ADF controller PCB	**3) Try replacing the cooling fan (FM1). Is the problem corrected?** YES: End. NO: Replace the ADF controller PCB.

4.1.52 E420 (Indicated if iR7200)

ADF controller PCB	**1) Replace the ADF controller PCB.**

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4.1.53 E421 (Indicated if iR7200)

ADF controller PCB	**1) Replace the ADF controller PCB.**

4.1.54 E422 (iR8500)

Communication cable	**1) Is the communication cable between the machine and the copier connected properly?** NO: Connect the cable properly.
Connector	**2) Is the connector (J1) on the ADF controller PCB connected properly?** NO: Connect the connector properly.
Cable ADF controller PCB	**3) Is the cable from the connector (J1) of the ADF controller PCB to the communication cable normal?** NO: Replace the cable. YES: Replace the ADF controller PCB.

4.1.55 E422 (iR7200)

Communication cable	**1) Is the cable between host machine and the machine connected normally?** NO: Connect it properly.
Connector	**2) Is the connector (J1) on the ADF controller PCB connected normally?** NO: Connect it normally.
Cable, ADF controller PCB	**3) Is the cable from the connector (J1) on the ADF controller PCB to the communication cable normal?** NO: Correct the cable. YES: Replace the ADF controller PCB.

4.1.56 E601

Connector	**1) Is the connection between the HDD and the connector on the main controller PCB secure?** NO: Connect the connectors securely.
Wiring	**2) Is the connection and the cabling between the DC controller PCB and the main controller PCB proper?** NO: Correct the connection an cabling.
Hard disk	**3) Try replacing the hard disk. Is the problem corrected?** YES: End.
DC controller PCB, main controller PCB	**4) Try replacing the DC controller PCB. Is the problem corrected?** YES: End. NO: Replace the main controller PCB.

4.1.57 E602

System software	**1) Has the system software been installed?** NO: Install the system software
Connector	**2) Are the connectors and the cables between the HDD and the main controller PCB connected properly?** NO: Connect the connectors and cables properly.
Hard disk	**3) Try replacing the hard disk. Is the problem corrected?** YES: END NO: Replace the main controller PCB.

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4.1.58 E676
4.1.59 E677

Connector	**1) Is the wiring of the printer board (option) normal?** NO: Correct the connection.
Connector	**2) Is the connection between the riser PCB and the main controller PCB normal?** NO: Correct the connection. YES: End.
Riser PCB, Main controller PCB	**3) Try replacing the riser PCB. Is the problem corrected?** YES: End. NO: Replace the main controller PCB.

4.1.60 E710-0001 (Reader controller PCB), E710-0002 (DC controller PCB) E710-0003 (Main controller PCB)
4.1.61 E711-0001 (Reader controller PCB), E711-0002 (DC controller PCB) E711-0003 (Main controller PCB)

Malfunction, each controller PCB	**1) Turn off and the on the power switch. Is the problem corrected?** YES: End. NO: Replace the reader controller PCB (0001). Replace the DC controller PCB (0002). Replace the main controller PCB (0003).

4.1.62 E712

Malfunction	**1) Turn off and then on the power switch. Is the problem corrected?** YES: End.
Connector	**2) Is the connector J772 used to connect the DADF and the copier connected securely?** NO: Replace the Reader controller PCB.
ADF controller PCB, Reader controller PCB	**3) Try replacing the ADF controller PCB. Is the problem corrected?** YES: End. NO: Replace the Reader controller PCB.

4.1.63 E713

Malfunction	**1) Turn off and then on the power switch. Is the problem corrected?** YES: End.
Connector	**2) Is the connector J152 used to connect the finisher and the copier connected securely?** NO: Replace the DC controller PCB.
Finisher controller PCB, DC controller PCB	**3) Try replacing the finisher controller PCB. Is the problem corrected?** YES: End. NO: Replace the DC controller PCB.

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4.1.64 E717

Power supply	**1) Is the power to the copy data controller/NE controller normally supplied?** NO: Correct the supply. Caution: You need to clear the error in service mode: COPIER>FUNCTION>CLEAR>ERR.
Wiring	**2) Is the connection cable between the copy data controller/NE controller and the machine normal?** NO: Correct the cable. Caution: You need to clear the error in service mode: COPIER>FUNCTION>CLEAR>ERR.
Copy data controller/NE controller	**3) Try replacing the copy data controller/NE controller. Is the problem corrected?** YES: End.

4.1.65 E732

Wiring	**1) Is the connection and the cable between the main controller PCB and the reader controller PCB normal?** NO: Correct the connection and the cable.
Reader controller PCB	**2) Try replacing the reader controller PCB. Is the problem corrected?** YES: End. NO: Replace the main controller PCB.

4.1.66 E733

Wiring	**1) Is the connector and the cable between the main controller PCB and the DC controller PCB normal?** NO: Correct the connectors and the cable.
DC controller PCB	**2) Try replacing the DC controller PCB. Is the problem corrected?** YES: End. NO: Replace the main controller PCB.

4.1.67 E737

SDRAM	**1) Is the SDRAM on the main controller PCB mounted properly?** NO: Mount the SDRAM properly.
SDRAM	**2) Try replacing the SDRAM. Is the problem corrected?** YES: End. NO: Replace the main controller PCB.

4.1.68 E740

Ethernet card	**1) Is the Ethernet card mounted properly?** NO: Mount the card properly.
Ethernet card	**2) Try replacing the Ethernet card. Is the problem corrected?** YES: End. NO: Replace the main controller PCB.

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4.1.69 E741

Riser board	**1) Is the riser board mounted properly?** NO: Mount the board properly.
LIPS board	**2) Is the LIPS board mounted properly?** NO: End. YES: Replace the main controlled PCB.

4.1.70 E744

Language module	**1) Was the language module installed when the software was upgraded?** NO: Install the language module.
Mismatch Between System and BOOT ROM	**2) Is the BOOT ROM from a different product?** YES: Replace the boot ROM with an appropriate one.

4.1.71 E800

Malfunction	**1) Turn off and then on the power switch. Is the problem corrected?** YES: End.
J24	**2) Is the connector J505 on the DC controller PCB and the connector J1719 on the relay PCB connected securely?** NO: Connect the connectors securely.
Relay PCB, DC controller PCB	**3) Is the voltage of the connector J505-B13 on the DC controller PCB about 0 V?** YES: Check the wiring and electrical continuity from the DC controller PCB to the relay board PCB; if normal, replace the relay board PCB.

4.1.72 E804

Foreign matter	**1) Is there foreign matter that prevents the rotation of the fan around the power supply cooling fan (1/2)?** YES: Remove the foreign matter.
Connector	**2) Is the connector J505 on the DC controller PCB connected securely?** NO: Connect the connector securely.
Power supply fan 1/2 (FM11/12), DC controller PCB	**3) Try replacing the power supply cooling fan (1/2). Is the problem corrected?** NO: End. YES: Replace the DC controller PCB.

4.1.73 E805

Foreign matter	**1) Is three foreign matter that prevents the rotation of the fan around the fixing assembly heat discharge fan?** YES: Remove the foreign matter.
Connector	**2) Is the connector (J503) on the DC controller PCB connected securely?** NO: Connect the connector securely.
Fixing the discharge fan (FM2), DC controller PCB	**3) Try replacing the fixing heat discharge fan (FM2). Is the problem corrected?** NO: End. YES: Replace the DC controller PCB.

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4.1.74 E820

Foreign matter	**1) Is there foreign matter that prevents the rotation of the fan around the drum fan?** YES: Remove the foreign matter.
Connector	**2) Is the connector J512 on the DC controller PCB connected securely?** NO: Connect the connector securely.
Drum fan (FM8), DC controller PCB	**3) Try replacing the drum fan (FM8). Is the problem corrected?** NO: End. YES: Replace the DC controller PCB.

4.1.75 E823

Foreign matter	**1) Is there foreign matter that prevents the rotation of the fan around the pre-transfer charging assembly?** YES: Remove the foreign matter.
Connector	**2) Is the connector J504 on the DC controller PCB connected securely?** NO: Connect the connector securely.
Pre-transfer charging fan (FM10), DC controller PCB	**3) Try replacing the pre-transfer charging assembly fan (FM10). Is the problem corrected?** NO: End. YES: Replace the DC controller PCB.

4.1.76 E824

Foreign matter	**1) Is there foreign matter that prevents the rotation of the fan around the primary charging assembly fan?** YES: Remove the foreign matter.
Connector	**2) Is the connector J503 on the DC controller PCB connected securely?** NO: Connect the connector securely.
Primary charging assembly fan (FM1), DC controller PCB	**3) Try replacing the primary charging fan (FM1). Is the problem corrected?** YES: End. NO: Replace the DC controller PCB.

4.1.77 E830

Foreign matter	**1) Is there foreign matter that prevents the rotation of the fan around the separation fan?** YES: Remove the foreign matter.
Connector	**2) Is the connector J509 on the DC controller PCB connected securely?** NO: Connect the connector securely.
Separation fan (FM13), DC controller PCB	**3) Try replacing the separation fan (FM13). Is the problem corrected?** NO: End. YES: Replace the DC controller PCB.

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4.1.78 AC power is absent

Power plug	**1) Is the power plug connected to the power outlet?** NO: Connect the power plug.
Main power supply	**2) Is the rated AC voltage present at the power outlet?** NO: The problem is not of the copier. Advise the user.
Leakage breaker	**3) Remove the rear cover. Has the leakage breaker built onto the power cord base operated (i.e., the switch is at the marking ○)?** NO: Remove the cause of the activation of the leakage breaker, and shift the switch to the marking "|".
Power cord, AC driver PCB	**4) Try replacing the power cord and the AC driver PCB. Is AC power supplied?** YES: End. NO: Check the wiring of the AC power line and the connectors for poor contact.
Connector	**5) When the control panel power switch is turned on, is AC power supplied to the connector J28 on the DC power supply PCB?** NO: Check the connection of the main controller PCB (J1021) and the all-day power supply PCB (J785).
All-day power supply PCB	**6) When the control panel power switch is turned on, is 3.3 V supplied to the connectors J1021-1 and -2 on the main controlled PCB?** NO: Replace the all-day power supply PCB.
Power switch (SW1), Wiring	**7) Connect the meter probes to both terminals of the power switch (SW1). Is the resistance 0 Ω when the power switch is turned on and ∞ Ω when it is turned off?** NO: Replace the power switch. YES: Check the wiring of the AC power line. Check the connector for poor contact.

4.1.79 DC power is absent

Control pane power switch	**1) Is the main power lamp ON?** NO: Go to step 6.
Connector	**2) Is the connection of the connectors of the following PCBs normal?** **• Relay PCB J1718** **• DC controller PCB J501, J525**
AC power supply	**3) Is the rated voltage present between the connectors J28-1 and -5 and between J28-2 and -7 on the DC power supply PCB?** NO: See "4.1.78 AC power is absent."
Wiring	**4) Is the connection of the cable of the connector J1701-4 (overcurrent detection signal 1) of the relay PCB normal?** NO: Correct the connection.
Fuse (FU101)	**5) Is the fuse (FU101) on the DC power supply blown?** YES: Remove the cause of the fuse, and replace the fuse.

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Wiring, DC load, DC power supply PCB

6) Turn offf the main power switch. In about 3 min, turn on the min power switch. Is the voltage between the following terminals on the relay PCB normal?

Connector	Pin No.	Output voltage	Remarks
J1704	1	12 V	+7%, –10%
	3	3.3 V	±5%
J1705	1	+8 V	±10%
	3	–8 V	±10%
	5	15 V	±10%
J1706	1	5 V	±4%

However, the output voltages in the table assume that the AC input voltage is ±10% in terms of tolerance:

YES: Turn offf the power switch, and disconnect the following connectors from the relay PCB:
- J1711
- J1712
- J1714
- J1716
- J1718

Connect one of the disconnected connectors, and turn on the power switch. Repeat this on all connectors to find out the connector that activates the protection circuit, and check the wiring and DC load from that connector.

NO: Replace the DC power supply PCB.

4.1.80 Pickup fails

---

1) Slide out and then in the cassettes. Is the sound of the lifter fall and the lifter motor rotate heard?

NO: See “4.1.81 The lifter fails to move up.”

Drive gear

2) Is the drive belt attached correctly?

NO: Attach the drive belt correctly.

Right upper cover, Right lower cover

3) Are the right upper cover and the right lower cover closed fully?

NO: Close the covers.

Pressure spring

4) Do the right upper cover and the right lower cover operate to lift the vertical path rollers 1, 2, 3, and 4 in place?

NO: Check the pressure spring.

Vertical path 1 clutch (CL8),
Vertical path 2 clutch (CL9),
Vertical path 3 clutch (CL13),
Vertical path 4 clutch (CL15),
Pre-registration roller clutch (CL5)

5) Open the right upper cover and the right lower cover, and put paper over the cover open/closed sensor, and press the Start key. Do the vertical path rollers 1, 2, 3, and 4 and the pre-registration roller rotate?

NO: Check the wiring; if normal, replace the clutch.

Registration roller drive clutch

6) Is the leading edge of copy paper as far as the registration roller assembly?

YES: See "4.1.85 The registration roller fails to rotate."

Pickup assembly

7) Open the right upper cover and the right lower cover, and put a screwdriver into the door switch. Does the feed/separation roller rotate when the Start key is pressed?

YES: Go to step 9).

Pickup clutch, DC controller PCB

8) Set the meter range to 30 VDC. Connect the meter probes to the following connectors of the DC controller PCB. Does the voltage change form 24 to 0 V when the Start key is pressed?

Cassette	Clutch	+	–
Right deck	CL10	J511-A1	GND
Left deck	CL11	J518-B7	GND
3	CL12	J515-A1	GND
4	CL13	J517-A1	GND

YES: Check the wiring; if normal, replace the faulty clutch.
NO: Replace the DC controller PCB.

Sensor, Pickup assembly

9) Find out which sensor has detected the jam in service mode: COPIER>I/O>IP. Is the sensor normal?

NO: Check the wiring and the lever; if normal, replace the sensor.
YES: Remove the pickup assembly, and check the spring.

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4.1.81 The lifter fails to move up

Gear lever	**1) Remove the deck, and move the lifter by hand. Does it move smoothly?** NO: Remove the pickup assembly, and check the gears and the levers.
Spring lever	**2) Push up the pickup roller releasing lever with your finger. Does the pickup roller move down?** NO: Remove the pickup assembly, and check the spring and the lever.
Deck open/closed sensor	**3) Slide in the deck. Is the voltage of the following connector on the DC controller PCB about 5 V?** **Right deck (PS23): J511-B5** **Left deck (PS33): J518-B2** NO: Check the sensor flag and the wiring; if normal, replace the sensor.
Deck limit sensor	**4) Check the voltage of the following connectors on the DC controller PCB. Is it about 0 V?** **Right deck (PS24): J511-B8** **Left deck (PS34) J518-B5** NO: Check the sensor flag and the wiring; if normal, replace the sensor.
Lifter motor, DC controller PCB	**5) Turn on the main power switch and the control panel power switch. Set the meter range to 30 VDC. Connect the – meter probe to GND and the + probe to the connector of the DC controller PCB. When the deck is slid in, does the voltage change from about 0 to 24 V?** **Right deck (M13): J514-A4** **Left deck (M14): J514-B1** YES: Replace the deck liter motor. NO: Replace the DC controller PCB.

4.1.82 The lifter fails to move up (pickup from cassette)

Cassette size detecting switch	**1) Is the size of the cassette indicated on the message display?** NO: Check the cassette size detecting switch.
Latch assembly (cassette)	**2) Is the operation for the open button assembly of the cassette normal?** NO: Mount the button assembly properly.
Spring lever	**3) Push up the pickup roller releasing lever with your finger. Does the pickup roller move down?** NO: Remove the pickup assembly, and check the spring and the lever.
Cassette open/closed sensor	**4) When the cassette is inserted, is the voltage at the following connectors on the DC controller PCB about 5 V?** **Cassette 3 (PS40): J515-B5** **Cassette 4 (PS45): J517-B5** NO: Check the sensor flag and the wiring; if normal, replace the sensor.
Lifter motor, DC controller PCB	**5) Turn on the main power switch and the control panel power switch. Set the meter range to 30 VDC. Connect the – meter probe to GND, and connect the + meter probe to the following jacks. When the cassette is inserted, does the voltage change from about 0 to 24 V?** **Cassette 3 (M16): J516-A4** **Cassette 4 (M17): J516-B1** YES: Remove the lifter motor assembly, and check the gar; if normal, replace the motor. NO: Replace the DC controller PCB.

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4.1.83 Pickup fails (multifeeder)

Wiring	**1) Is the connector (of the machine) of the multifeeder connected correctly?** NO: Connect the connector correctly.
----------	**2) Is the leading edge of the copy paper as far as the registration roller?** YES: See "4.1.85 The registration roller fails to rotate."
Pickup roller., Pickup/feeding roller, Separation roller	**3) Are the pickup roller, pickup/feeding roller, and separation roller mounted correctly?** NO: Mount the rollers correctly.
Manual feed paper sensor (PS17)	**4) Execute the following in service mode. When paper is placed in the multifeeder assembly, does bit 12 change from 0 to 1?** **COPIER>I/O>DC-CON>P004** NO: Check the wiring and the sensor flag; if normal, replace the sensor (PS17) (J510-B7, B8, B9 on DC controller PCB).
Manual feed tray pickup clutch (CL7)	**5) Execute the following in service mode. Is the sound of the clutch (CL7) heard?** **COPIER>FUNCTION>PART-CHK>CL1** ↓ **OK** ↓ **COPIER>FUNCTION>PART-CHK>CL-ON** ↓ **OK** NO: Check the wiring; if normal, replace the clutch (CL7) (J513-A8, A9 on DC controller PCB).

Manual tray feeding clutch (CL18)

6) Execute the following in service mode. Is the sound of the clutch (CL18) heard?

COPIER>FUNCTION>PART-CHK>CL16

↓

OK

↓

COPIER>FUNCTION>PART-CHK>CL-ON

↓

OK

NO: Check the wiring; if normal, replace the clutch (CL18) (J513-A6, -A7 on DC controller PCB).

Multifeeder pickup latch solenoid (SL6)

7) Execute the following in service mode. Does the multifeeder pickup roller move up/down?

COPIER>FUNCTION>PART-CHK>SL5 (up)

COPIER>FUNCTION>PART-CHK>SL6 (down)

↓

OK

↓

COPIER>FUNCTION>PART-CHK>SL-ON

↓

OK

NO: Check the wiring and the link; if normal, replace the solenoid (SL6) (J510-10, -11, -12 on controller PCB).

DC controller PCB

8) Try replacing the DC controller PCB. Is the problem corrected?

YES: End.

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4.1.84 The vertical path roller fails to rotate

Belt, Gear, Coupling

1) Is the drive from the pickup motor (M2) transmitted to each vertical path roller through the belt, gear, and coupling?

NO: Mount the belt, gear, and coupling correctly.

Vertical path 1 clutch

2) Execute the following in service mode. Is the sound of the clutch (CL8) heard?

COPIER>FUNCTION>PART-CHK>CL7

↓

OK

↓

COPIER>FUNCTION>PART-CHK>CL-ON

↓

OK

NO: Check the wiring; if normal, replace the clutch (CL8) (J511-A3, -A4 on DC controller PCB).

Vertical path 2 clutch

3) Execute the following in service mode. Is the sound of the clutch (CL9) heard?

COPIER>FUNCTION>PART-CHK>CL9

↓

OK

↓

COPIER>FUNCTION>PART-CHK>CL-ON

↓

OK

NO: Check the wiring; if normal, replace the clutch (CL9) (J514-A6, -A7 on controller PCB).

Vertical path 3 clutch

4) Execute the following in service mode. Is the sound of the clutch (CL13) heard?

COPIER>FUNCTION>PART-CHK>CL13

↓

OK

↓

COPIER>FUNCTION>PART-CHK>CL-ON

↓

OK

NO: Check the wiring; if normal, replace the clutch (CL13) (J515-A3, -A4 on DC controller PCB).

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Vertical path 4 clutch, DC controller PCB

5) Execute the following in service mode. Is the sound of the clutch (CL15) heard?

COPIER>FUNCTION>PART-CHK>CL15

↓

OK

↓

COPIER>FUNCTION>PART-CHK>CL-ON

↓

OK

NO: Check the wiring; if normal, replace the clutch (CL15) (J517-A3, -A4 on DC controller PCB).

YES: Replace the DC controller PCB.

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4.1.85 The registration roller fails to rotate

Belt, Gear, Coupling

1) Is the drive form the main motor (M1) transmitted to the registration roller through the belt, gear, and coupling?

NO: Mount the belt, gear, and coupling correctly.

Registration power sensor (PS5)

2) Execute the following in service mode. When paper is placed in the registration power sensor assembly, does bit 11 change from 0 to 1?
COPIER>I/O>DC-CON>P001

NO: Check the wiring and the sensor flag; if normal, replace the sensor (PS5) (J509-A1,- A2, -A3 on DC controller PCB).

Registration roller clutch (CL2), DC controller PCB

3) Execute the following in service mode. Is the sound of the clutch (CL2) heard?
COPIER>FUNCTION>PART-CHK>CL2
↓
OK
↓
COPIER>FUNCTION>PART-CHK>CL-ON
↓
OK

NO: Check the wiring; if normal, replace the clutch (CL2) (J509-A4, -A5 on DC controller PCB).

YES: Replace the DC controller PCB.

4.1.86 The No. 1 mirror base fails to operate

Copyboard glass	**1) Is the copyboard glass mounted correctly?** NO: Mount the copyboard glass so that the copyboard glass sensor (PS57) will be properly actuated.
Copyboard glass sensor (PS57)	**2) Measure the voltage of J804-2 on the scanner motor drive PCB.** **• With the copyboard glass mounted, 5 V** **• With the copyboard glass removed, 0 V** NO: If the voltage does not change when the sensor is pushed by hand and if the wiring is free of a fault, replace the sensor.
Cable	**3) Is the scanner drive cable strung correctly?** NO: String the cable correctly.
Scanner path (foreign matter)	**4) Is the scanner rail free of dirt and does the scanner move smoothly when pushed by hand?** NO: Check the surface of the scanner rail for dirt, foreign matter, and obstacle; as necessary, clean, lubricate, or correct. Reference: If the rail is soiled, clean it with alcohol, and apply a small amount of silicone oil (FY9-6010).
Relay PCB	**5) Measure the voltage of J801 on the scanner motor driver PCB. Is it follows?** **• J801-1 (38 V)** **• J801-3 (12 V)** **• J801-5 (-12 V)** **• J801-6 (5 V)** NO: Check the AC line to the relay PCB; if normal, replace the relay PCB.
Reader controller PCB	**6) Measure the voltage of J1109-A12 on the Reader controller PCB. Does the voltage change from 0 to 5 V when the control panel power switch is turned on?** NO: If the wiring is free of a fault, replace the DC controlled PCB.
Scanner motor driver PCB, Scanner motor (M5)	**7) Try replacing the scanner motor drive PCB. Is the problem corrected?** YES: End. NO: Replace the scanner motor (M5).

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4.1.87 The pre-exposure lamp fails to go ON

Pre-exposure lamp PCB

1) Make the following selections in service mode: COPIER>I/O>IP. Does bit 0 of address P016 change from 0 to 1 when the Start key is pressed?

YES: Check the wiring from the DC controller PCB to the pre-exposure lamp; if normal, replace the pre-exposure lamp PCB.

DC controller PCB, Pre-exposure lamp PCB

2) Set the meter range to 30 VDC. Is the voltage between J504-A1 (+) on the DC controller PCB and GND change from 0 to 24 V?

NO: Replace the DC controller PCB.

YES: Check the wiring from the DC controller PCB to the pre-exposure lamp; if normal, replace the pre-exposure lamp PCB.

4.1.88 The scanning lamp fails to go ON

Connector

1) Make the following selections in service mode: COPIER>FUNCTION>MISC-R>SCANLAMP. Does the scanning lamp remain ON for 3 sec when the OK key is pressed?

YES: The connector may have poor contact. Check the connector.

Lamp (mounting condition)

2) Is the scanning lamp (LA1) mounted properly?

NO: Disconnect the power plug from the power plug, and mount the lamp properly.

Relay PCB

3) Measure the voltage of J1001-1 on the inverter PCB. Is it 38 V?

NO: Check the AC line to the relay PCB; if normal, replace the relay PCB.

Inverter PCB, Reader controller PCB

4) Measure the voltage of J1109-B11 on the reader controller PCB. Does it change from 5 to 0 V when the control panel power switch is pressed?

YES: If the wiring is free of a fault, replace the inverter PCB.

NO: If the wiring is free of a fault, replace the DC controller PCB.

4.1.89 The toner feed motor (M6) inside the cartridge fails to operate

----------	**1) Execute the following in service mode: COPIER>FUNCTION>PART-CHK>MTR. Does the toner feed motor inside the cartridge rotate?** NO: Go to step 3).
DC controller PCB, J243, J245	**2) Execute the following in service mode to rotate the hopper motor: COPIER>FUNCTION>PART-CHK>MTR. Does the voltage between J512-B4 (+) and -B5 (–) on the DC controller PCB change to 24 V?** NO: Replace the DC controller PCB. YES: Check the connection of the relay connectors J243 and J245.

4.1.90 The toner feed motor (M18) inside the hopper fails to rotate

----------	**1) Execute the following in service mode: COPIER>FUNCTION>PART-CHK>MTR. Does the toner feed motor inside the hopper rotate?** NO: Go to step 3).
DC controller PCB, J138, J143	**2) Execute the following in service mode to start the toner feed motor inside the hopper: COPIER>FUNCTION>PART-CHK>MTR. Does the voltage between J504-B12 (+) and -B13 (–) on the DC controller PCB change to about 24V?** NO: Replace the DC controller PCB. YES: Check the connection of the relay connectors J138 and J143.

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4.1.91 The drum heater fails to operate

----------	**1) Open the front cover, and release the fixing/feeding assembly. Are the ends of the drum warm? (Do not touch the drum.)** YES: The drum heater operates.
DC controller PCB	**2) Set the meter range to 12 VDC. Connect the meter probes to J505-A7 (+) and -A8 (–) on the DC controller PCB. Is the voltage between the terminals 5 V in standby?** NO: Replace the DC controller PCB.
AC drive PCB	**3) Try replacing the AC driver PCB. Is the problem corrected?** YES: End.
Drum heater (H3), Drum heater controller PCB	**4) Remove the drum. Set the meter range to Ω×1, and connect the meter probes across the terminals of the heater. Does the index of the meter swing?** NO: Replace the drum heater. YES: Replace the drum heater controller PCB.

4.1.92 The “Add Toner” message fails to turn ON

----------	**1) Is there toner inside the hopper?** YES: Go to step 2).
Toner sensor (hopper assembly), DC controller PCB, DC controller, Control panel	**2) Make the following selections in service mode: COPIER>I/O>DC-CON. Then, move aside toner to expose the toner sensor (TS1). At this time, does bit 0 of P003 indicate ‘0’ (absence of toner)?** NO: Perform the following: 1. Replace TS1. 2. Replace the DC controller PCB. YES: Perform the following: 1. Replace the DC controller PCB. 2. Replace the control panel.

4.1.93 The “Add Toner” message fails to go OFF

Toner (amount)	**1) Is there toner at the rear of the hopper assembly?** NO: The amount of toner inside the hopper is low. Supply toner.
Toner sensor (TS1), DC controller PCB, Control panel	**2) Make the following selections in service mode: COPIER>I/O>DC-CON. At this time, does bit 0 of P003 indicate ‘0’ (absence of toner)?** YES: Perform the following: 1. Replace the toner sensor (TS1) of the hopper assembly. NO: Perform the following: 1. Replace the DC controller PCB. 2. Replace the control panel.

4.1.94 The “Card Reader Set” message fails to turn ON

Card reader	**1) Check to see if the card reader is installed. Enter ‘1’ in the following service mode: COPIER>FUNCTION>INSTALL>CARD; then, turn off and then on the power switch. Does the message go ON?** YES: Check to find out if the card reader connector has short circuited.
Control panel, Main controller PCB	**2) Try replacing the control panel. Does the message go ON?** YES: End. NO: Replace the main controller PCB.

4.1.95 The “Card Reader Set” message fails to go OFF

Card reader	**1) Is a card fitted in the card reader correctly?** NO: Fit the card correctly.
Main controller PCB, Card reader	**2) Can copies be made?** NO: Replace the main controller PCB. YES: Replace the card reader.

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4.1.96 The “Add Paper” message fails to go OFF (deck right/left)

Deck paper sensor (deck right, PS22; deck left, PS32)

1) Is the deck paper sensor mounted correctly? Further, is the movement of the sensor flag normal?

NO: Mount the sensor correctly.

4.1.97 The “Add Paper Message” fails to go OFF (cassette 3/4)

Cassette paper sensor (cassette 3, PS39; cassette 4, PS44)

1) Is the cassette paper sensor mounted correctly? Further, is the movement of the sensor flag normal?

NO: Mount the sensor correctly?

Cassette pickup assembly

2) Is the output gear of the lifter motor or the gear of the cassette pickup assembly skipping teeth engagement?

YES: Mount the lifter motor correctly. Or, replace the lifter motor and the cassette pickup assembly at the same time.

4.1.98 The fixing heater fails to operate

Multifeeder cover

1) Is the multifeeder cover closed firmly?

NO: Close the multifeeder cover firmly.

Multifeeder cover open/closed sensor (PS56)

2) Is the multifeeder cover open/closed sensor mounted correctly?

NO: Mount the sensor correctly.

YES: Replace the sensor.

Fixing/feeding unit releasing lever sensor (PS28)

3) Is the fixing/feeding unit releasing lever sensor mounted correctly?

NO: Mount the sensor correctly.

YES: Replace the sensor.

Thermal switch (TP1)

4) Slide out the fixing assembly, and connect the meter probes to both terminals of the thermal switch (TP1). Is there electrical continuity?

NO: Replace the thermal switch unit.

Fixing heater (H1, H2)

5) Slide out the fixing assembly, and connect the meter probes to both terminals of the fixing heater (H1, H2). Is there electrical continuity?

NO: Replace the fixing heater.

AC driver PCB, DC controller PCB

6) Is the voltage at the following connectors on the DC controller PCB about 5 V?

Heater	(+)
Main heater (H1)	J505-A11
Sub heater (H2)	J505-A13

YES: Replace the AC driver PCB.

NO: Replace the DC controller PCB.

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4.1.99 Pickup fails (side paper deck)

Right upper cover, Right lower cover	**1) Are the right upper cover and the right lower door closed properly?** NO: Close the covers properly.
Lifter	**2) Does the lifter move down when the compartment is slid out of the deck? Further, is the sound of the lifter moving up heard when the compartment is slid in?** NO: See "4.1.81 The lifter fails to move up."
Deck pickup roller	**3) Does the pickup roller rotate?** YES: If the roller is soiled, clean it with alcohol. If deformation caused by wear is found, replace it.
Belt	**4) Is the belt used to transmit drive to the pickup roller attached correctly?** NO: Attach the belt correctly.
Drive belt, Gear, Coupling	**5) Is the drive from the deck main motor transmitted to the pickup assembly through the drive belt, gear, and coupling?** NO: Check the drive belt, gear, and coupling.
Side deck drive PCB output, Deck pickup, Vertical clutch (pickup, CL102; feeding, CL101)	**6) Measure the voltage of the following connectors on the side deck PCB. Does it change from 24 to 0 V when the Start key is pressed?** **• J104-7 (CL101)** **• J104-12 (CL102)** NO: Replace the side deck driver PCB. YES: Check the wiring to the clutch; if normal, replace the clutch.

4.1.100 The deck lifter fails to move up (side paper deck)

Side paper deck	
	1) Is the deck mounted correctly? NO: Mount the deck correctly.
Lifter cable	
	2) Is the lifter cable attached correctly? NO: Attach the cable correctly.
Spring, Lever	
	3) Push up the pickup roller releasing lever with your finger. Does the pickup roller move down? NO: Remove the pickup assembly, and check the spring and the lever.
Deck lifter motor (M102)	
	4) Does the deck lifter motor rotate? YES: Go to step 6).
Side paper deck drive PCB, Deck open detecting switch (SW101)	
	5) Does the voltage between J109-3 on the side deck driver PCB and GND (–) change from about 0 to 5 V when the deck is closed? NO: Replace the side deck drive PCB. YES: Check the wiring to the switch; if normal, replace the switch.
Deck lifter lower limit detecting switch (SW102), Side deck driver PCB	
	6) Is the voltage between J107-8 (+) and GND (–) on the side deck driver PCB as follows? **• When the deck is opened, 0 V.** **• When the deck is closed, 5 V.** YES: Check the lever and the wiring; if normal, replace the sensor. NO: Replace the side deck drive PCB.

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5 Troubleshooting Feeding Faults

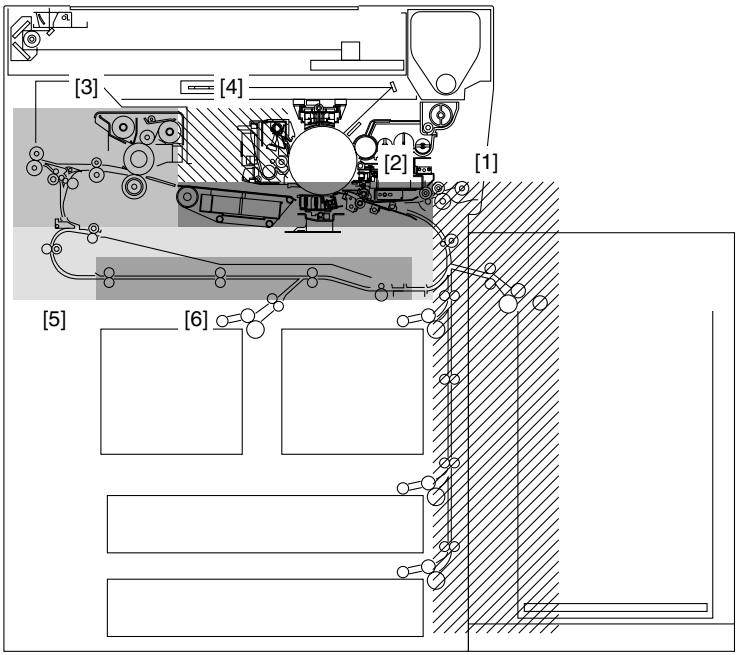
5.1 Paper Jams

Inside the machine, paper jams tend to occur in one of the following locations:

[1] Pickup assembly
[2] Separation/feeding assembly
[3] Fixing delivery assembly
[4] Drum cleaner assembly
[5] Holding tray assembly
[6] Feeding assembly

The discussions of paper jams that follow are arranged according to these locations.

The location of a jam and its nature may be checked in the machine's service mode (COPIER>DISPLAY>JAM).



F06-501-01

5.1.1 Pickup Assembly

Pickup assembly	**1) Is the paper curled or wavy?** YES: Replace the paper. Advise the user on the correct method of storing paper. **2) Try paper of a recommended type. Is the problem corrected?** YES: Advise the user to use paper of a recommended type.
DC controller PCB, Pickup clutch	**3) During printing operation, does the pickup roller of the selected source of paper (cassette, deck, manual feed tray) rotate?** NO: See the discussions under each fault.
Pickup roller, Guide plate	**4) Is the pickup roller deformed or worn?** YES: Replace the pickup roller. NO: Check the guide plate for deformation.

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5.1.2 Separation/Feeding Assembly

Paper	**1) Is the leading edge of paper beyond the registration roller?** YES: Go to step 5).
Registration roller	**2) Is the coupling of the registration roller joined correctly?** NO: Mount the fixing/feeding unit correctly. **3) Is the registration roller worn, deformed, or soiled?** YES: If soiled, clean with alcohol; if worn or deformed, replace it. **4) Is the roller retaining springs on both ends of the registration roller mounted correctly?** NO: Mount them correctly. YES: Check the transfer guide for foreign matter and deformation.
Registration clutch	**5) Is the operation of the registration clutch normal?** NO: Check the registration clutch.
Transfer/separation charging assembly	**6) Is the transfer/separation charging assembly fitted securely?** YES: Check the transfer/separation charging assembly. **7) Are there burrs on the paper guide of the transfer/separation charging assembly?** YES: Remove the burrs.
Paper	**8) Try paper of a recommended type. Is the problem corrected?** YES: Advise the user to use paper of a recommended type.
Separation claws (cleaner assembly)	**9) Is the separation claw found under the cleaning assembly damaged?** YES: Replace the separation claw.
Feeding belt, Feeding fan	**10) Are the two separation belts rotating without fail?** NO: Check the belt and the pulley. YES: Check the feeding fan to see if it operates.

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5.1.3 Fixing/Delivery Assembly

Separation claw (delivery assembly)

1) Is the separation claw worn or deformed?

YES: Perform the following:

1. Replace the separation claw.
2. If soiled, clean it with solvent.

Fixing assembly

Upper/Lower Roller

2) Is the upper/lower roller deformed or scratched?

YES: Replace the roller.

Paper guide

3) Is the paper guide soiled with toner or the like?

YES: Clean the guide with solvent.

4) Is the height (position) of the guide normal?

NO: Adjust the guide.

Nip width

5) Is the lower roller pressure (nip width) as indicated?

NO: Adjust the nip width.

Delivery assembly

Web

6) Is the web taken up normally?

NO: Check the fixing cleaning assembly.

Sensor lever

7) Does each sensor lever move smoothly?

NO: Adjust the lever so that it moves smoothly.

Delivery sensor

8) Are the outside delivery sensor (PS10) and the claw jam sensor (PS6) normal?

NO: Replace the sensor.

Delivery deflecting plate

9) Is the delivery deflecting plate oriented in the direction of delivery?

NO: Correct the orientation of the delivery deflecting plate.

Leading edge margin

Delivery roller drive assembly

10) Does the delivery roller move smoothly?

NO: Check the delivery roller drive assembly.

YES: Check the leading edge of the copy paper to see if there is a margin.

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5.1.4 Fixing, Delivery Assembly (reversal delivery assembly)

Duplex reversal sensor (PS12)

1) Is the duplex reversal sensor (PS12) normal?

NO: Replace the sensor.

Inside delivery sensor (PS9)

2) Is the inside delivery sensor (PS9) normal?

NO: Replace the sensor.

Delivery flapper solenoid (SL3)

3) Does the delivery flapper move correctly?

NO: Adjust the position of the delivery flapper solenoid or replace it.

Reversal flapper solenoid (SL11)

4) Does the reversal flapper move correctly?

NO: Adjust the position of the reversal flapper solenoid, or replace it.

Reversal motor (M11)

5) Does the reversal motor (M11) rotate at the correct timing?

NO: Replace the reversal motor (M11).

5.1.5 Cleaning Assembly

Transfer/separation charging assembly, Pre-transfer charging assembly

1) Are the transfer/separation charging assembly and the pre-transfer charging assembly fitted securely?

NO: Fit the transfer/separation charging assembly.

2) Is the height of the charging wire as indicated?

NO: Adjust the height of the charging assembly.

Separation claw (cleaning assembly)

3) Is the separation claw found under the cleaning assembly damaged?

YES: Replace the separation claw.

Paper, High-voltage transformer, DC controller PCB

4) Try paper of a recommended type. Is the problem corrected?

YES: Advise the user to use paper of a recommended type.

NO: Perform the following:

1. Check the high-voltage transformer.
2. Check the DC controller PCB.

5.1.6 Lower Feeding Assembly

----------	**1) Is the lower feeding assembly fitted correctly?** NO: Fit the assembly correctly.
Lower feeding middle clutch (CL16), Lower feeding right clutch (CL17)	**2) Is the roller inside the lower feeding assembly rotating correctly?** NO: Replace CL16 or CL17.
Pre-confluence sensor (PS14), Post-confluence sensor (PS15)	**3) Are the pre-confluence sensor (PS14) and the post-confluence sensor (PS15) normal?** NO: Replace PS14 or PS15.

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5.2 Faulty Feeding

5.2.1 Double Feeding

Separation roller, Spring

1) Is the separation roller deformed or worn?

YES: Replace the separation roller.

NO: Replace the spring used to pull the separation roller.

5.2.2 Wrinkles

Pickup assembly

1) Turn off the power while paper is moving through the feeding assembly. At this time, is the paper wrinkled? Or is it moving askew?

YES: Check the pickup assembly. Check the registration roller.

Paper

2) Try fresh paper. Is the problem corrected?

YES: The paper may be moist. Advise the user on the correct method of storing paper.

3) Try paper of a recommended type. Is the problem corrected?

YES: Advise the user to use paper of a recommended type.

Fixing assembly, Paper guide

4) Is the paper guide soiled with toner or the like?

YES: Clean the guide with solvent.

5) Is the height (position) of the paper guide correct?

NO: Adjust the height (position) of the paper guide.

Lower roller pressure, Upper/Lower roller pressure

6) Is the lower roller pressure (nip width) as indicated?

NO: Adjust the nip width.

YES: Try replacing the upper and lower rollers one after the other.

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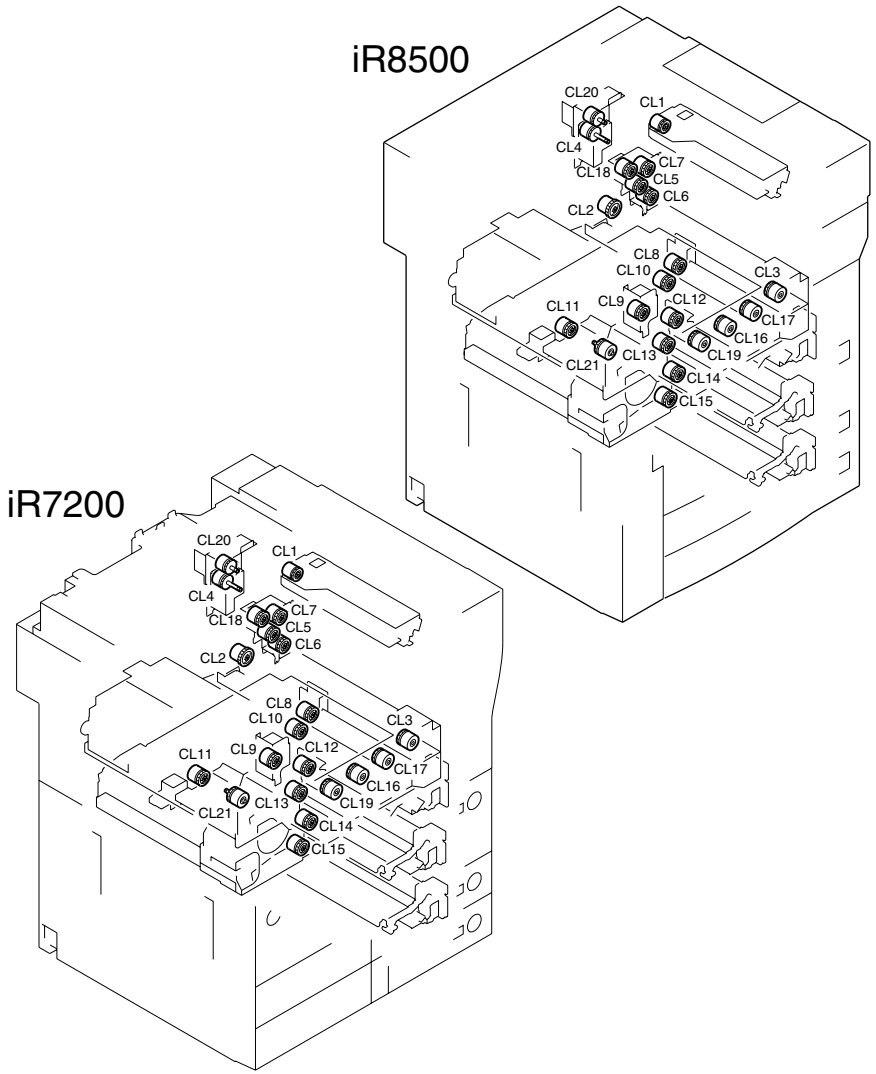
6 Arrangement and Function of Electrical Parts

6.1 Clutches



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Name	Notation
Hopper internal magnet roller drive clutch	CL1
Registration clutch	CL2
Registration brake clutch	CL3
Developing clutch	CL4
Pre-registration clutch	CL5
Pre-registration brake clutch	CL6
Manual feed tray pickup clutch	CL7
Vertical path 1 clutch	CL8
Vertical path 2 clutch	CL9
Deck (right) pickup clutch	CL10
Deck (left) pickup clutch	CL11
Cassette 3 pickup clutch	CL12
Vertical path 3 clutch	CL13
Cassette 4 pickup clutch	CL14
Vertical path 4 clutch	CL15
Lower feeding middle clutch	CL16
Lower feeding right clutch	CL17
Manual feed tray feeding clutch	CL18
Deck (left) feeding clutch	CL19
Developing cylinder deceleration clutch	CL20
Delivery speed switching clutch	CL21

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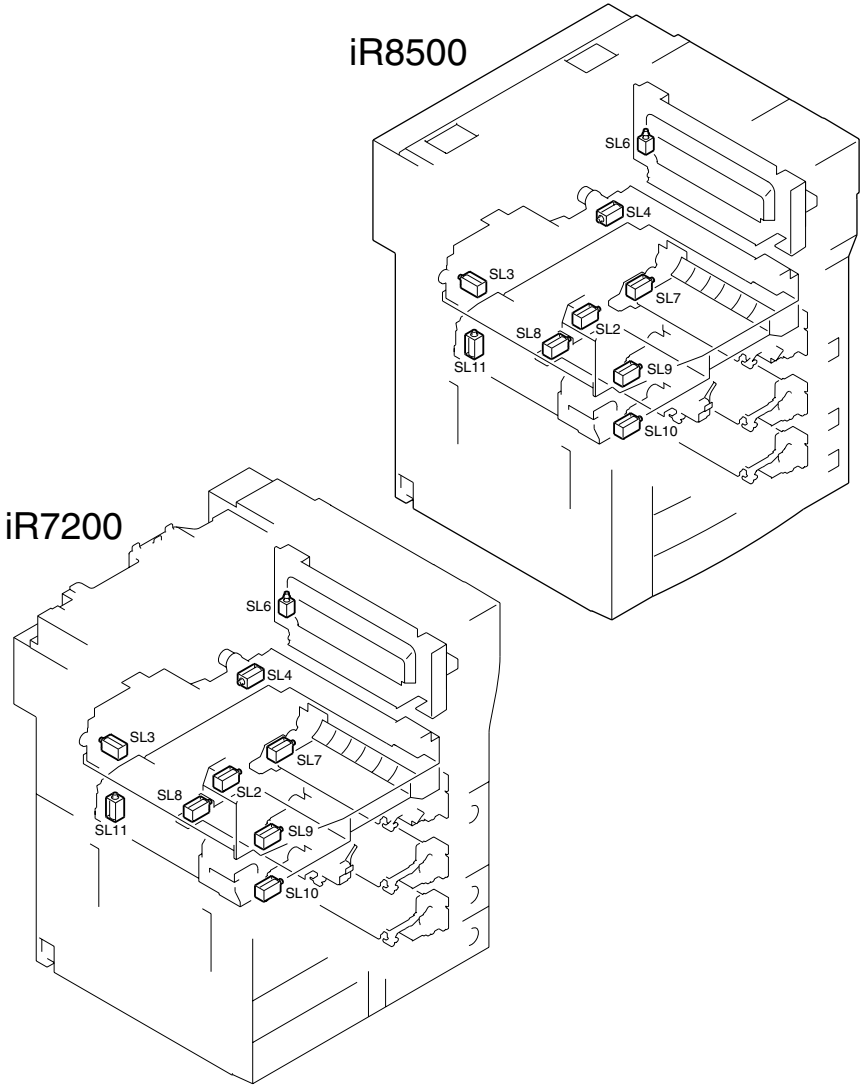
6.2 Solenoids



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Name	Notation
Fixing cleaning belt solenoid	SL2
Delivery flapper solenoid	SL3
Fixing feeding unit locking solenoid	SL4
Manual feed pickup clutch solenoid	SL6
Deck (right) pickup solenoid	SL7
Deck (left) pickup solenoid	SL8
Cassette 3 pickup solenoid	SL9
Cassette 4 pickup solenoid	SL10
Reversing flapper solenoid	SL11

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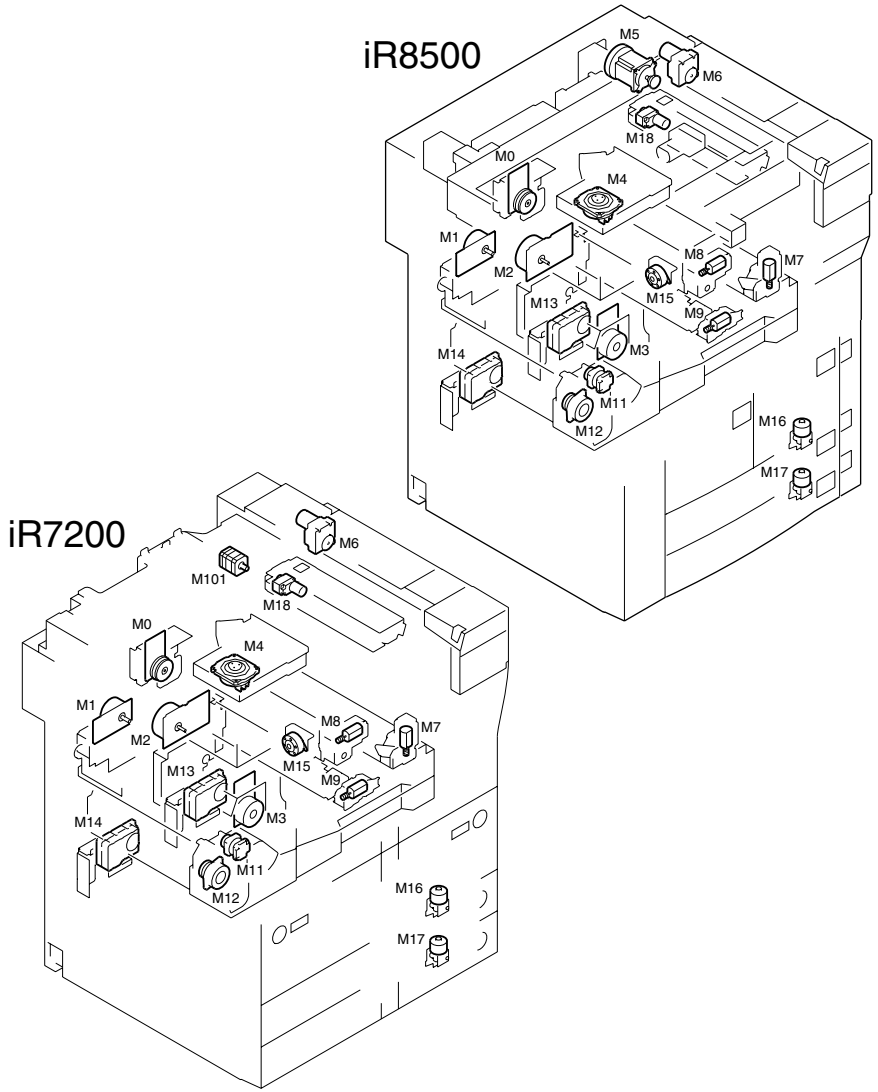
6.3 Motors



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Name	Notation
Drum motor	M0
Main motor	M1
Pickup motor	M2
Fixing motor	M3
Laser scanner motor	M4
Scanner motor (iR8500)	M5
Cartridge internal toner feeder motor	M6
Pre-transfer charging wire cleaning motor	M7
Primary charging wire cleaning motor	M8
Transfer/separation charging wire cleaning motor	M9
Duplexing reversal motor	M11
Duplexing feed motor	M12
Deck (right) lifter motor	M13
Deck (left) lifter motor	M14
Horizontal registration motor	M15
Cassette 3 lifter motor	M16
Cassette 4 lifter motor	M17
Hopper internal toner feeder motor	M18
Scanner motor (iR7200)	M101

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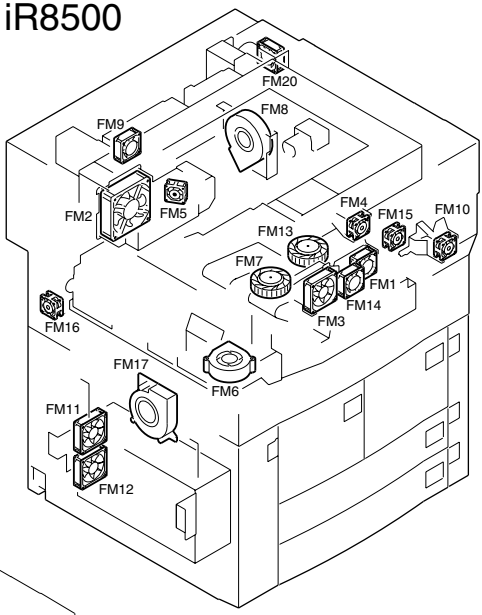
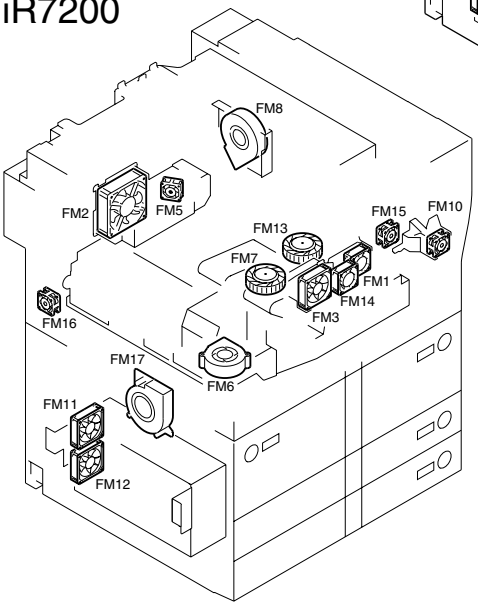
6.4 Fans

iR8500



iR7200



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Name	Notation
Primary charging assembly fan	FM1
Fixing assembly heat discharge fan	FM2
Scanner cooling fan	FM3
Stream reading fan (iR8500)	FM4
Laser driver cooling fan	FM5
De-curling fan	FM6
feeding fan	FM7
Drum fan	FM8
Inverter cooling fan (iR8500)	FM9
Pre-transfer charging fan	FM10
Power supply cooling fan 1	FM11
Power supply cooling fan 2	FM12
Separation fan	FM13
Laser scanner fan	FM14
Developing fan	FM15
System fan	FM16
Delivery adhesion-proofing fan	FM17
Scanner motor cooling fan (iR8500)	FM20

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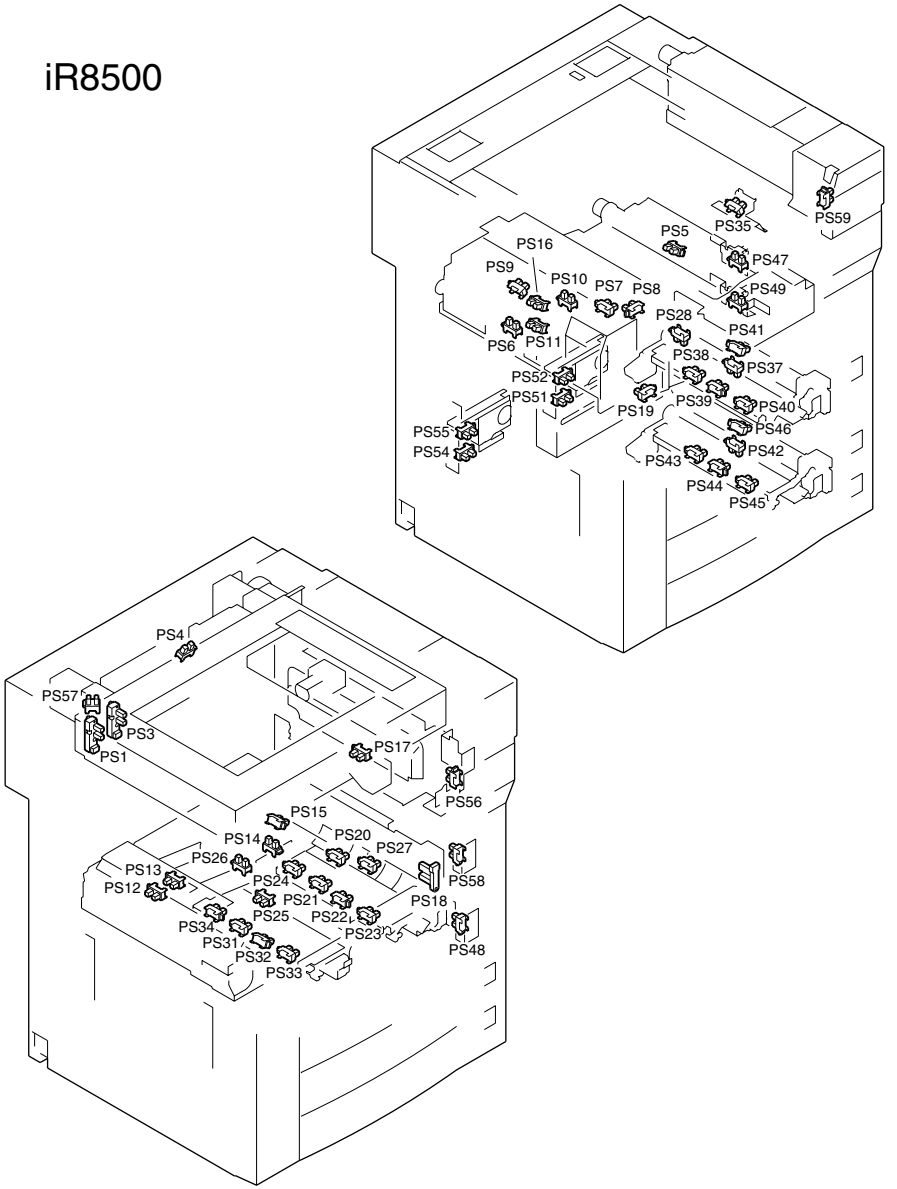
6.5 Sensor 1

iR8500



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Name	Notation
Scanner home position sensor	PS1
Image leading edge sensor	PS3
Copyboard cover open/closed sensor	PS4
Registration paper sensor	PS5
Fixing claw jam sensor	PS6
Fixing cleaning belt sensor	PS7
Fixing cleaning belt warning sensor	PS8
Internal delivery sensor	PS9
External delivery sensor	PS10
Fixing feeding unit outlet sensor	PS11
Duplexing reversal sensor	PS12
U-turn sensor	PS13
Pre-confluence sensor	PS14
Post-confluence sensor	PS15
Reversal sensor	PS16
Manual feed tray paper sensor	PS17
Horizontal registration sensor	PS18
Waste toner case full sensor	PS19
Front deck (right) pickup sensor	PS20
Front deck (right) lifter sensor	PS21
Front deck (right) paper sensor	PS22
Front deck (right) open/closed sensor	PS23
Front deck (right) limit sensor	PS24
Front deck (left) pickup sensor	PS25
Front deck (left) feeding sensor	PS26
Front deck (right) feeding sensor	PS27
Fixing/feeding unit releasing lever sensor	PS28
Front deck (left) lifter sensor	PS31
Front deck (left) paper sensor	PS32
Front deck (left) open/closed sensor	PS33
Front deck (left) limit sensor	PS34
Manual feed sensor	PS35
Cassette 3 pickup sensor	PS37
Cassette 3 lifter sensor	PS38
Cassette 3 paper sensor	PS39
Cassette 3 open/closed sensor	PS40
Vertical path 3 paper sensor	PS41
Cassette 4 pickup sensor	PS42
Cassette 4 lifter sensor	PS43
Cassette 4 paper sensor	PS44
Cassette 4 open/closed sensor	PS45
Vertical path 4 paper sensor	PS46
Vertical path 1 paper sensor	PS47
Lower right cover open/closed sensor	PS48
Vertical path 2 paper sensor	PS49
Front deck (right) paper level middle sensor	PS51
Front deck (right) paper level high sensor	PS52
Front deck (left) paper level middle sensor	PS54
Front deck (left) paper level high sensor	PS55
Manual feed tray cover open/closed sensor	PS56
Copyboard glass sensor	PS57
Upper right cover open/closed sensor	PS58
Toner cartridge cover open/closed sensor	PS59

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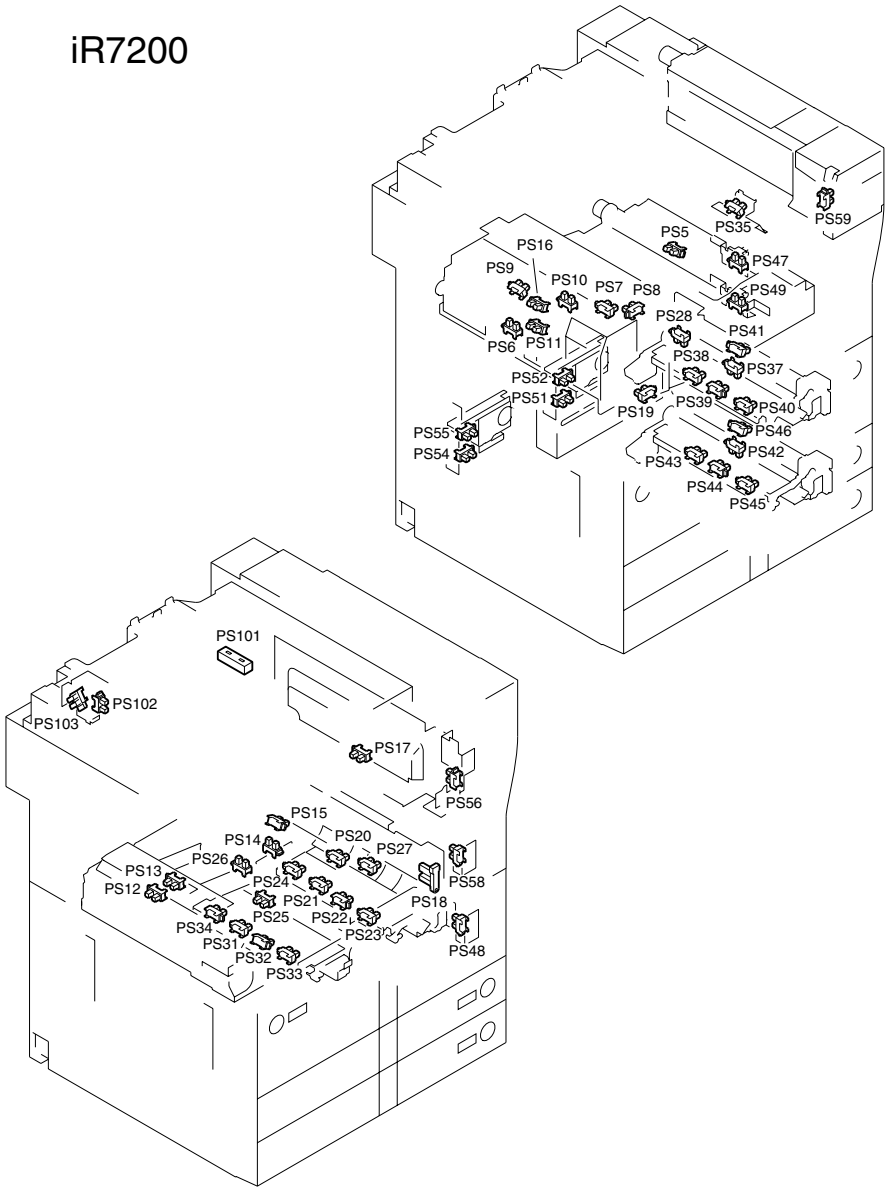
iR7200



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Name	Notation
Registration paper sensor	PS5
Fixing claw jam sensor	PS6
Fixing cleaning belt sensor	PS7
Fixing cleaning belt warning sensor	PS8
Internal delivery sensor	PS9
External delivery sensor	PS10
Fixing feeding unit outlet sensor	PS11
Duplexing reversal sensor	PS12
U-turn sensor	PS13
Pre-confluence sensor	PS14
Post-confluence sensor	PS15
Reversal sensor	PS16
Manual feed tray paper sensor	PS17
Horizontal registration sensor	PS18
Waste toner case full sensor	PS19
Front deck (right) pickup sensor	PS20
Front deck (right) lifter sensor	PS21
Front deck (right) paper sensor	PS22
Front deck (right) open/closed sensor	PS23
Front deck (right) limit sensor	PS24
Front deck (left) pickup sensor	PS25
Front deck (left) feeding sensor	PS26
Front deck (right) feeding sensor	PS27
Fixing/feeding unit releasing lever sensor	PS28
Front deck (left) lifter sensor	PS31
Front deck (left) paper sensor	PS32
Front deck (left) open/closed sensor	PS33
Front deck (left) limit sensor	PS34
Manual feed sensor	PS35
Cassette 3 pickup sensor	PS37
Cassette 3 lifter sensor	PS38
Cassette 3 paper sensor	PS39
Cassette 3 open/closed sensor	PS40
Vertical path 3 paper sensor	PS41
Cassette 4 pickup sensor	PS42
Cassette 4 lifter sensor	PS43
Cassette 4 paper sensor	PS44
Cassette 4 open/closed sensor	PS45
Vertical path 4 paper sensor	PS46
Vertical path 1 paper sensor	PS47
Lower right cover open/closed sensor	PS48
Vertical path 2 paper sensor	PS49
Front deck (right) paper level middle sensor	PS51
Front deck (right) paper level high sensor	PS52
Front deck (left) paper level middle sensor	PS54
Front deck (left) paper level high sensor	PS55
Manual feed tray cover open/closed sensor	PS56
Upper right cover open/closed sensor	PS58
Toner cartridge cover open/closed sensor	PS59
Original sensor	PS101
Scanner HP sensor	PS102
Copyboard cover sensor	PS103

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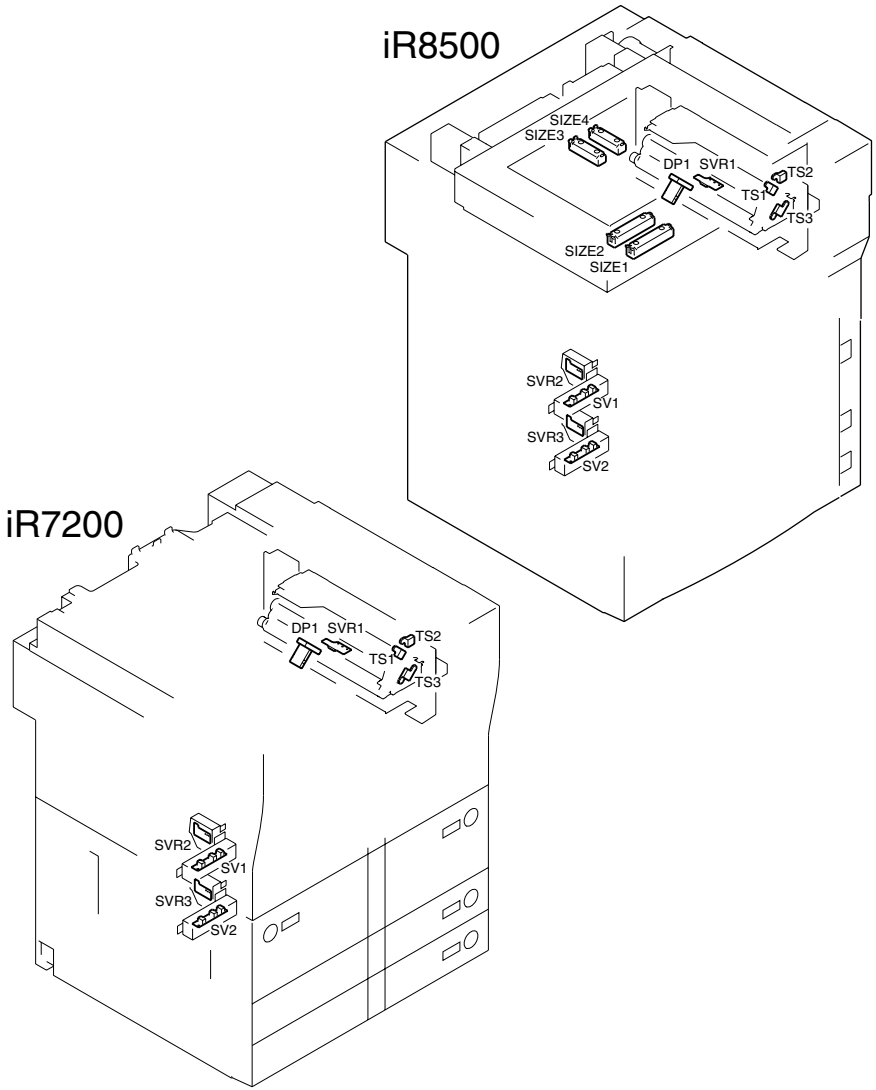
6.6 Sensor 2



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Name	Notation
Original size sensor 1 (iR8500)	SIZE1
Original size sensor 2 (iR8500)	SIZE2
Original size sensor 3 (iR8500)	SIZE3
Original size sensor 4 (iR8500)	SIZE4
Cassette 3 paper length sensor	SV1
Cassette 4 paper length sensor	SV2
Manual feed tray paper width volume	SVR1
Cassette 3 paper width volume	SVR2
Cassette 4 paper width volume	SVR3
Hopper internal toner sensor	TS1
Hopper internal toner lower limit sensor	TS2
Developing assembly internal toner sensor	TS3
Potential sensor	DP1

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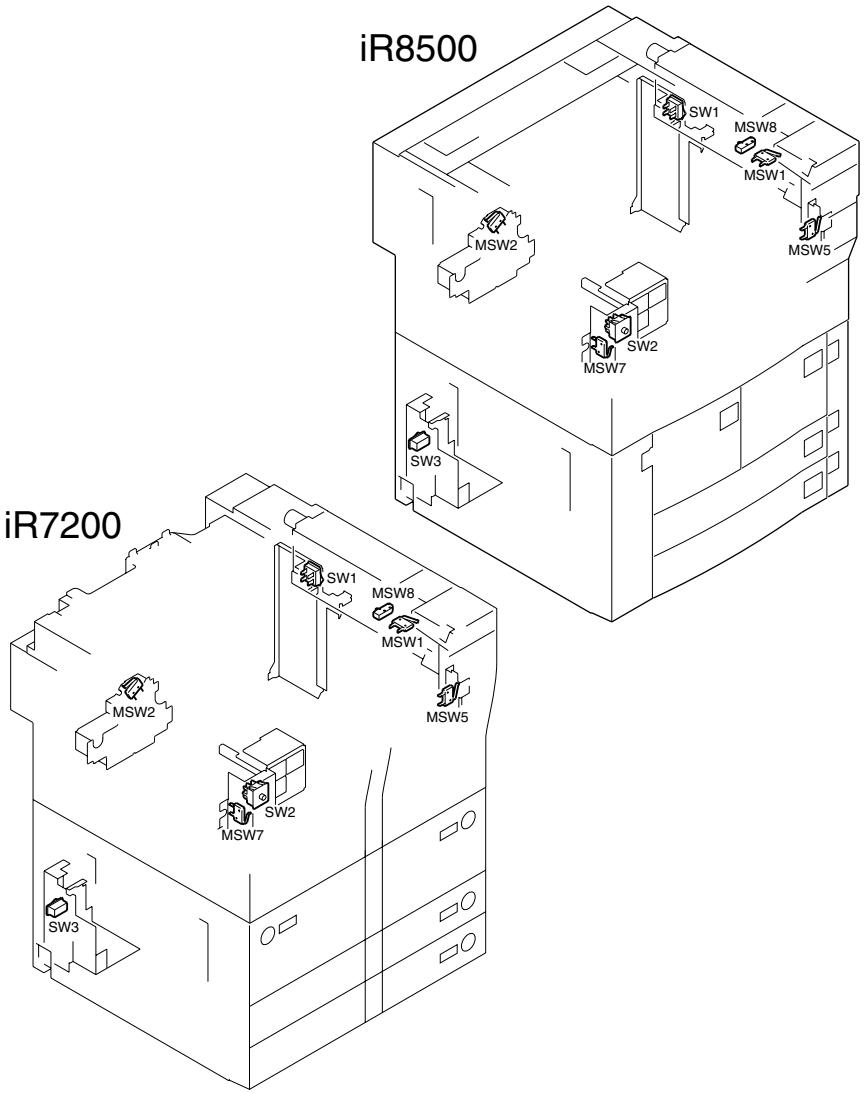
6.7 Switches



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Name	Notation
Main switch	SW1
Front cover switch	SW2
Drum heater switch	SW3
Cartridge detecting switch	MSW1
Waste toner clog detecting switch	MSW2
Manual feed tray cover open/closed detecting sensor	MSW5
Front cover open/closed detecting switch	MSW7
Cartridge motor drive switch	MSW8

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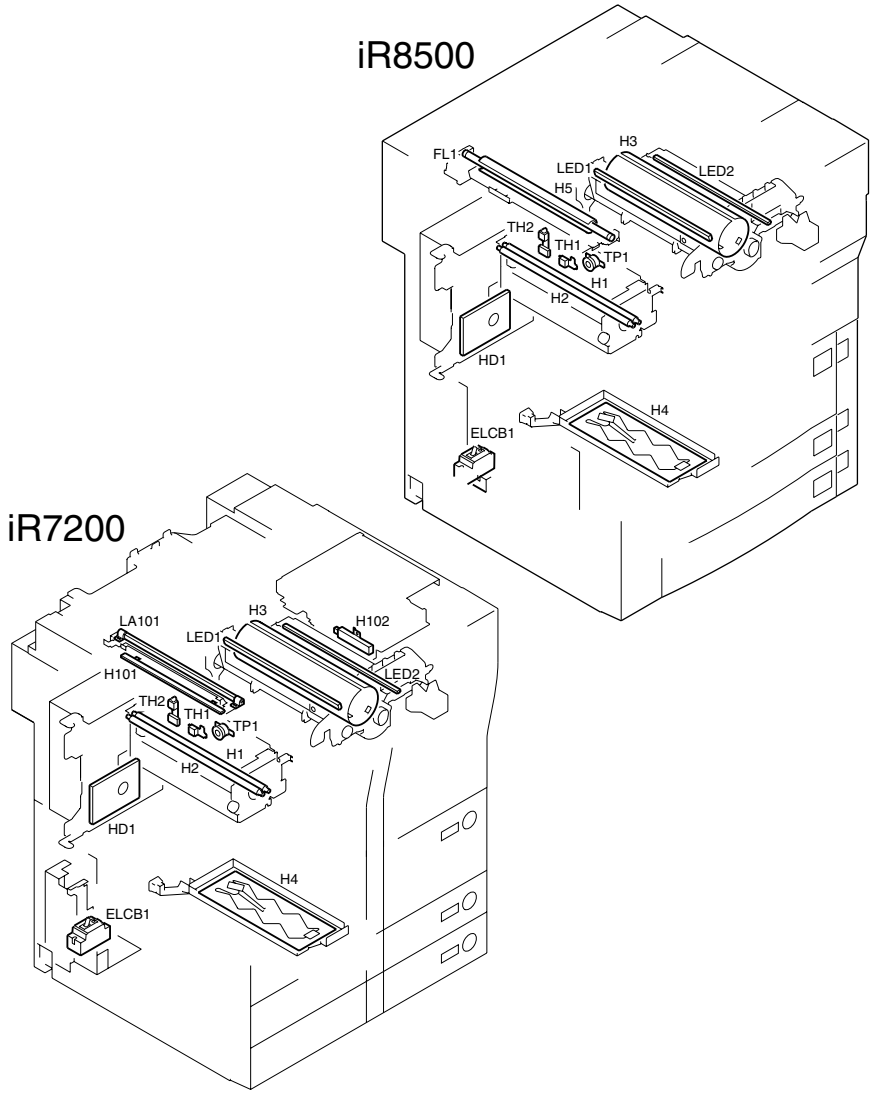
6.8 Counters, Heaters, Fuses, and Others



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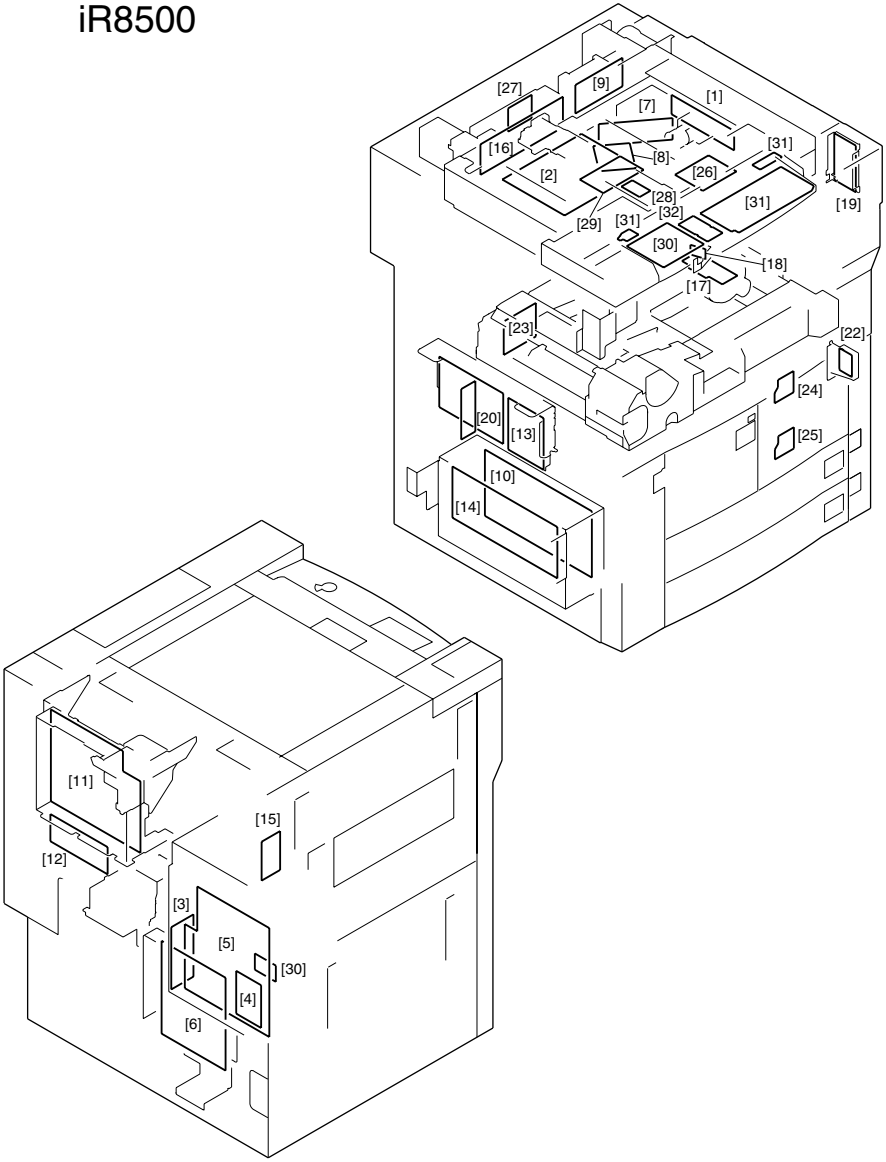
Name	Notation	Description
Scanning lamp (fluorescent lamp)	FL1	Scanning lamp (iR8500)
Scanning lamp (xenon lamp)	LA101	Scanning lamp (xenon lamp) (iR7200)
Heater	H1	Fixing main heater
	H2	Fixing sub heater
	H3	Drum heater
	H4	Cassette heater
	H5	Scanning lamp heater (iR8500)
	H101	Lens heater (iR7200)
	H102	Mirror heater (iR7200)
Thermistor	TH1	Fixing main thermistor
	TH2	Fixing sub thermistor
Thermal switch	TP1	Fixing heater thermal switch
Leakage breaker	ELCB1	Leakage breaker
Pre-exposure lamp	LED1	Pre-exposure lamp
Pre-transfer expgure lamp	LED2	Pre-transfer exposure lamp
Hard disk	HD1	Hard disk

T06-608-01

6.9 PCBs

iR8500



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Name	Notation
CCD/AP PCB	PCB1
Reader controller PCB	PCB2
Pixel/line conversion PCB	PCB3
Differential PCB	PCB4
Main controller PCB	PCB5
DC controller PCB	PCB6
Laser driver PCB 1	PCB7
Laser driver PCB 2	PCB8
Scanner motor drier PCB	PCB9
DC power supply PCB	PCB10
HVT-DC1 PCB	PCB11
HVT-AC PCB	PCB12
All day power supply PCB	PCB13
Relay PCB	PCB14
Bi-Centronics PCB	PCB15
Fluorescent inverter PCB	PCB16
Drum heater control PCB	PCB17
BD PCB	PCB18
Potential control PCB	PCB19
AC driver PCB	PCB20
Environment sensor PCB	PCB22
No-stacking PCB	PCB23
Cassette 3 paper level detection PCB	PCB24
Cassette 4 paper level detection PCB	PCB25
Laser scanner motor drier PCB	PCB26
Intensity control PCB	PCB27
Intensity sensor PCB	PCB28
Original orientation detection PCB	PCB29
Control panel CPU PCB	PCB30
Control panel PCB	PCB31
Control panel inverter PCB	PCB32

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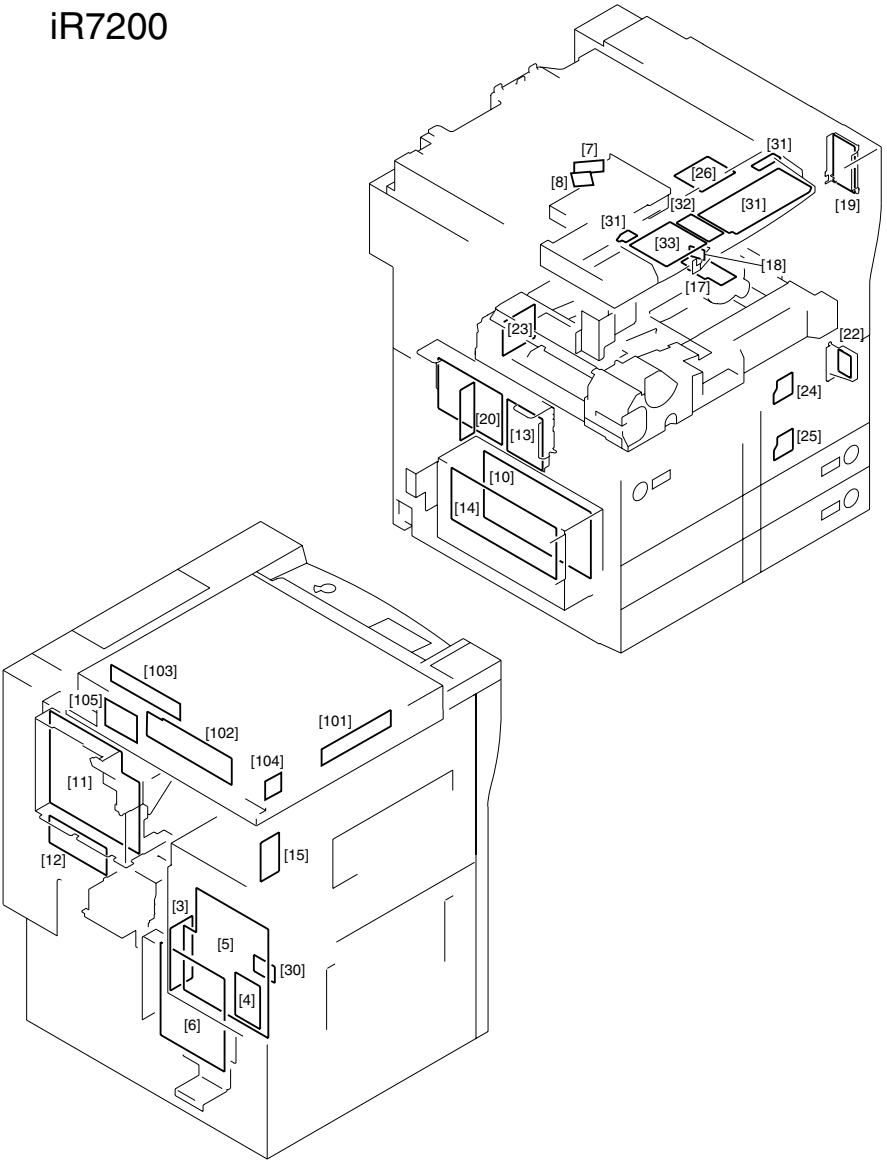
iR7200



F06-609-02

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Name	Notation
Pixel/line conversion PCB	PCB3
Differential PCB	PCB4
Main controller PCB	PCB5
DC controller PCB	PCB6
Laser driver PCB 1	PCB7
Laser driver PCB 2	PCB8
DC power supply PCB	PCB10
HVT-DC1 PCB	PCB11
HVT-AC PCB	PCB12
All day power supply PCB	PCB13
Relay PCB	PCB14
Bi-Centronics PCB	PCB15
Drum heater control PCB	PCB17
BD PCB	PCB18
Potential control PCB	PCB19
AC driver PCB	PCB20
Environment sensor PCB	PCB22
No-stacking PCB	PCB23
Cassette 3 paper level detection PCB	PCB24
Cassette 4 paper level detection PCB	PCB25
Laser scanner motor drier PCB	PCB26
Control panel PCB	PCB31
Control panel inverter PCB	PCB32
Control panel CPU PCB	PCB33
CCD/AP PCB	PCB101
Reader controller PCB	PCB102
Inverter PCB	PCB103
Fuse PCB	PCB104
Differential PCB	PCB105

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6.10 Variable Registers (VR), Light-Emitting Diodes, and Check Pins by PCB

Of the variable resistors (VR), light-emitting diodes, and switches found inside the machine, those needed in the field are discussed.

1. Some LEDs emit dim light even when they are off. This is a normal condition, and must be kept in mind.
2. VRs that may be used in the field.

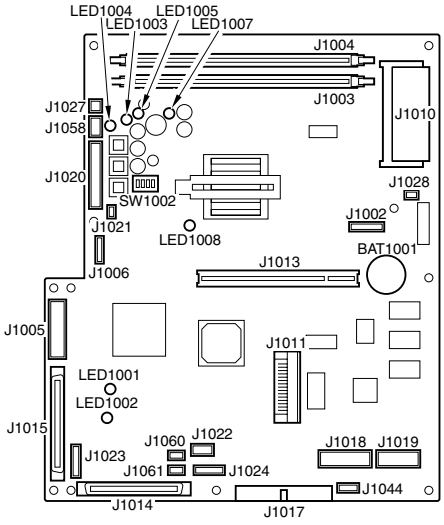
   : ⊘

   VRs that must not be used in the field

   : ⊘

The VRs and check pins not found in the tables are for factory use only. They require special tools and high accuracy and, therefore, must not be touched in the fieled when making adjustments and checks.

6.10.1 Main Controller PCB



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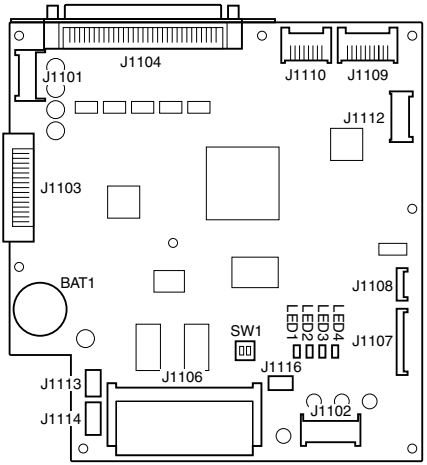
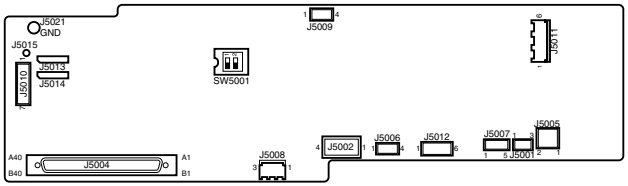
6.10.2 Reader Controller PCB (iR8500)



F06-610-02

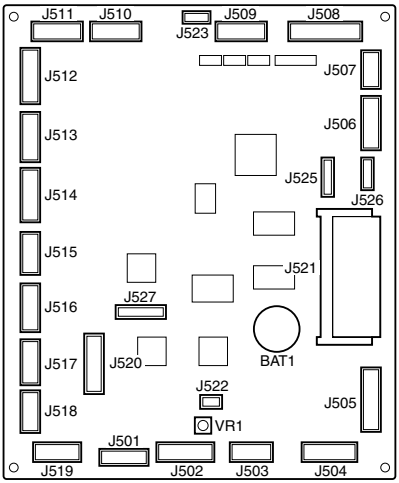
6.10.3 Reader Controller PCB (iR7200)



F06-610-03

	SW5001-1	SW5001-2
ON:	Inch series.	Not used.
OFF:	AB series.	Not used.

6.10.4 DC Controller PCB



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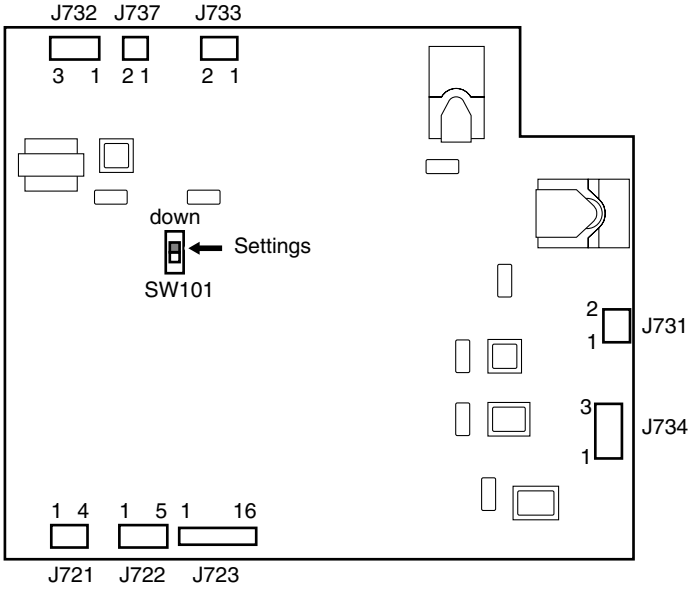
6.10.5 HV-DC PCB



F06-610-05

The slide switch (SW101) is for factory use only, and is not used for servicing work in the field (Keep it as it is set at the factory).

7 Upgrading

7.1 Outline

The machine is upgraded either by downloading data from a PC or by replacing its DIMM/ROM.

The following five items are upgraded by downloading from a PC:

- BOOT ROM (machine J1009 DIMM ROM)
- HD Format (machine HDD; formatting)
- Language (machine HDD)
- RUI (machine HDD)
- System (machine HDD)

As indicated, the language module may also be downloaded.

The machine may be connected to a network when downloading data from a PC.

For instructions on upgrading by means of replacing the DIMM/ROM, see 7.6 “Upgrading by Replacing the DIMM/ROM.”

7.1.1 Download Mode

The machine provides two types of download modes; although any of the two may be used to download all files, select with care if you want to format the hard disk (select the HD Format), as a specific partition must be selected.

You can use any of the two when using a parallel cable; however, the use of a network cable will require you to start up the machine’s network environment, necessitating the use of downloading in service mode.

- Downloading in Download Mode

To start download mode,

1) While holding down ‘2’ and ‘8’ on the keypad at the same time, turn on the power switch.
2) Hold down ‘2’ and ‘8’ on the keypad until the bottom of the touch panel indicates the message “Download Mode.”

Partition Available for Formatting the Hard Disk
/BOOTDEV
ALL

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- Downloading in Service Mode

To start download mode,

1) Start service mode.
2) Make the following selection: COPIER>FUNCTION>SYSTEM>DOWNLOAD. Then, press 'OK' so that the machine will be in download standby mode (message "STANDBY").

Partition Available for Formatting the Hard Disk
/PDLDEV
/FSTDEV
/DOSDEV

If you use the Service Support Tool while the machine is not in download mode, the machine will treat data from the interface as a local print job and, accordingly, will increment the job count.
When you use the Service Support Tool, be sure to switch the machine to download mode in advance by following the instructions on the screen.

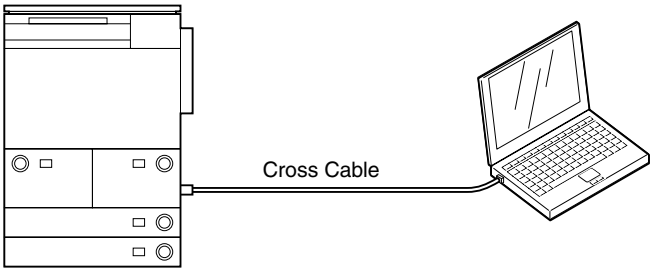
7.1.2 Making Pre-Checks

Prepare the following:

- PC to which the Service Support Tool (version 1.25 or later) has been installed
- System CD
- Connection cable

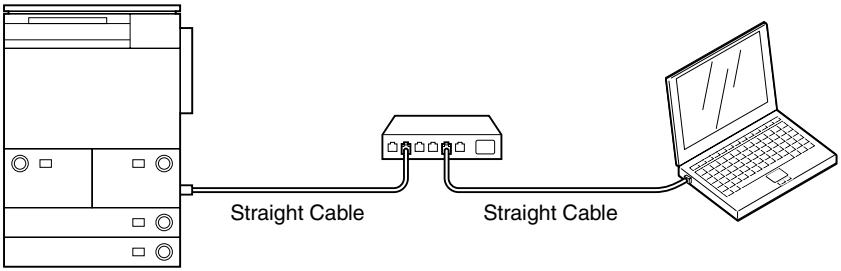
The type of cable depends on how the machine is to be connected to the PC.

- In the case of a bi-Centronics interface,
  obtain a parallel cable (indicating IEEE 1284Std-compliant).
- Using a Network Cable
  Connect the machine with the PC using a cross Ethernet cable or a straight Ethernet cable and a HUB.
  The following shows how a cross Ethernet cable may be used.



F06-701-01

If you are using a straight Ethernet cable and a HUB, you are encouraged to connect the machine with the PC on a one-on-one basis, outside the user's network environment.



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Memo

Differences in Connection Between Bi-Centronics Cable and Network Cable

Each has its own advantages and disadvantages; select one to suit specific needs:

Connection with a Bi-Centronics Cable (using a parallel cable)

Advantages:

- You can use the Service Support Tool without considering the environment of the user's network.
- If the system is not installed on the hard disk, the system may be installed or the hard disk may be formatted using download mode.

Disadvantages:

- The specifications of the PC used or the chip set may not allow the use of high-speed mode, i.e., it has a low level of compatibility.
- The PC must have a parallel interface.
- You can not use high-speed mode on Windows NT or Windows 2000.

Connection with a Network Cable

Advantages:

- It is relatively high speed.
- It is less dependent on the PC to be used.
- The use of a cross cable enables direct connection.

Disadvantages:

- You must change the network settings of the machine or the PC to suit the user's network environment. More importantly, you must change the machine back to its initial settings after the task.
- You must have a good knowledge of networking.
- The system must start up normally and the network settings must be correct.

Memo

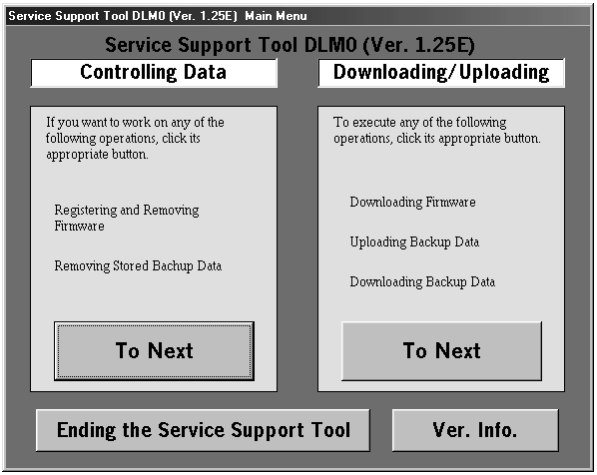
Points to Note When Using a Bi-Centronics Interface and a Network

The Service Support Tool allows you to select one of two interfaces to suit specific needs. If both are in use, you must turn the machine off and then on first before making a switch-over (i.e., from Bi-Centronics to Network or vice versa), thereby preventing errors in the event of simultaneous writing operations.

7.2 Data Control

You must install the files to use (System, RUI, HD Format , BOOT, Language) before executing downloading.

1) Start up the Service Support Tool.
2) Under 'Controlling Data', select 'To Next'.



F06-702-01

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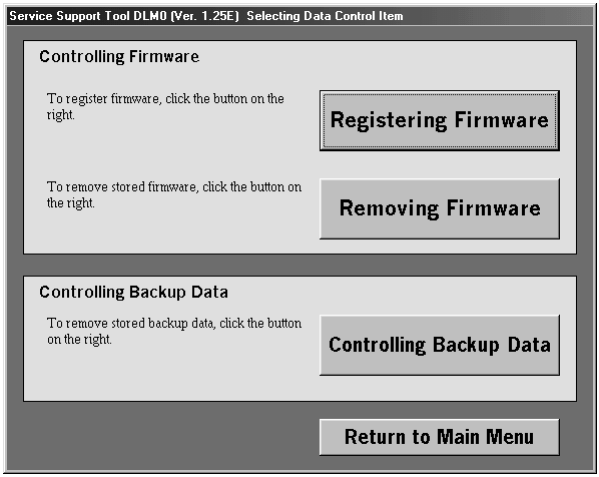
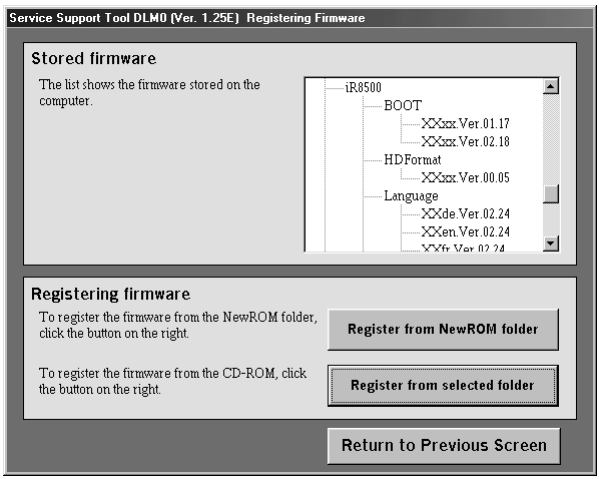
3) From the Control Work screen of the firmware, select 'Registering Firmware'.



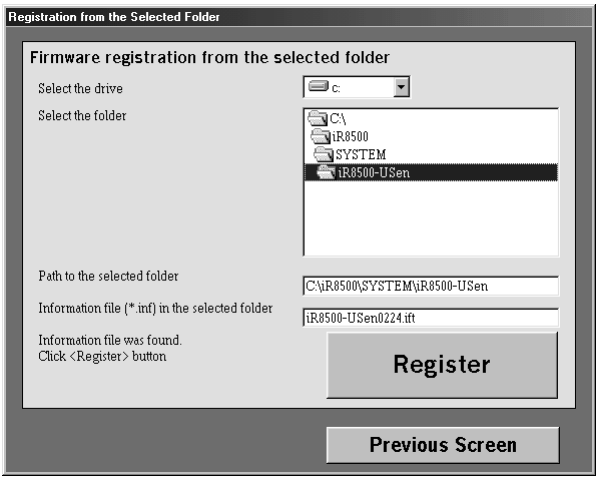
F06-702-02

4) From the following screen, select 'Register from selected folder'.



F06-702-03

5) Select the drive to which you have inserted the System CD.
6) Select the folder of the suitable version, and click 'Register'.



F06-702-04

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7.3 Downloading the System Software, RUI, and Language Module

7.3.1 Making Connections

The discussions that follow are based on the use of a parallel cable:

- Check to make sure that the Processing/Data lamp is OFF.

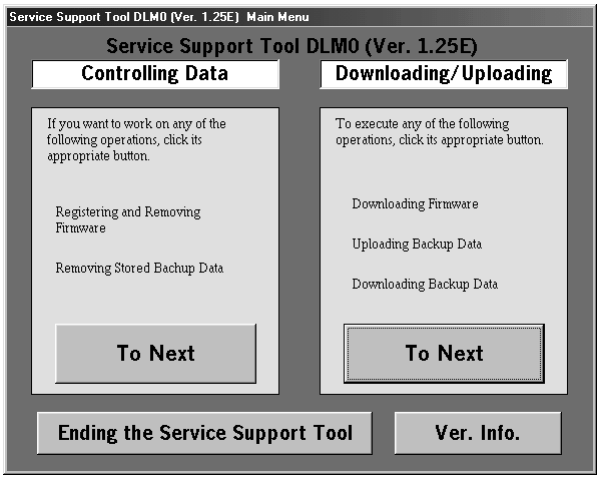
1) Turn off the machine's main power switch, and disconnect the power plug and the network cable.
2) Using a parallel cable, connect the PC to the parallel connector on the left side of the controller.

- At this time, the PC must remain OFF.
- Connect the 25-pin connector of the cable to the PC and the 36-pin connector to the machine.

3) Turn on the power switch of the PC, and start up the Service Support Tool.
4) Connect the machine's power plug to the power outlet, and turn on the main power switch.

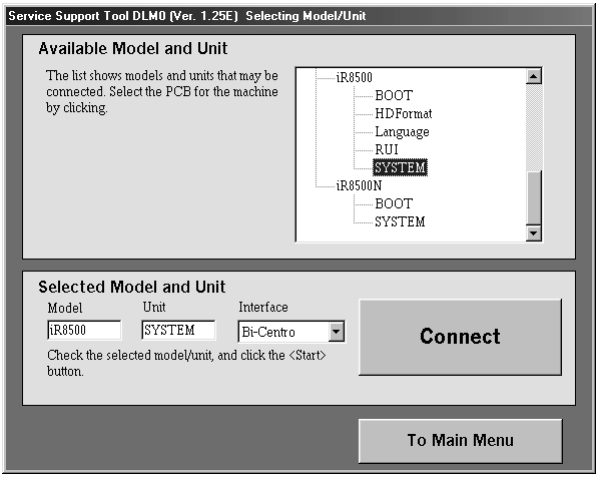
7.3.2 Downloading

1) Under 'Downloading/Uploading', select 'To Next'.



F06-703-01

2) Start the machine's service mode, and make the following selections: COPIER>FUNCTION>SYSTEM>DOWNLOAD. Then, press 'OK' so that the machine will be in download standby mode (notation "STNDBY").
3) Select SYSTEM, RUI, or Language, and select the interface (either Bi-Centronics or Network). The discussions that follow assume that you have selected bi-Centronics.



F06-703-02

Memo

About the Language Module (Language)
A language module is a unit containing the language data needed to indicate messages in the control panel, each module designed for a specific language. Install only those language modules you need, thus saving time spent for downloading. You can switch among installed language modules in user mode: common settings> display language. At time of shipment, five modules (languages) are installed. The modules will be lost once you format the hard disk, requiring you to install them once again to suit the needs of the user. To check the version of the modules, make the following selections: COPIER>DISPLAY>VERSION>LANG-XX. Check to make sure that the version of each language module matches the version of the installed system software; otherwise, use the langue module built into the system software to start up. The built-in module is not part of the modules that may be selected as the display language; for this reason, you will not be able to make use of the language switch unless you have installed modules independently of the system software. If you replace an existing language module with a module of an inappropriate version, 'E744-0001' will be indicated when the machine is started up for the first time; to reset the error, install a module of the correct version.

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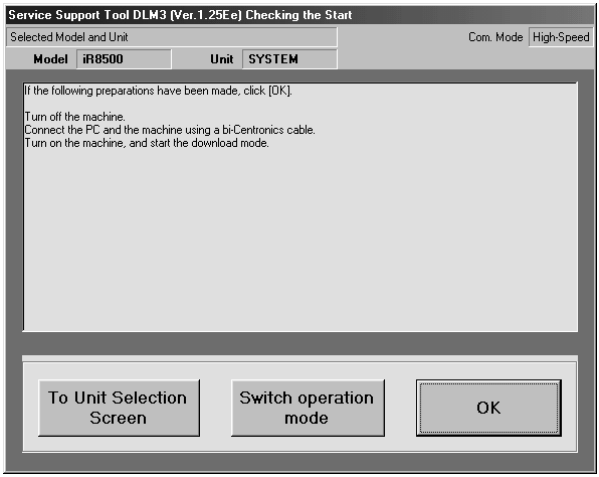
4) If the notation in the upper right of the screen is 'High-Speed', go to step 6); if 'Low-Speed', go to step 5).

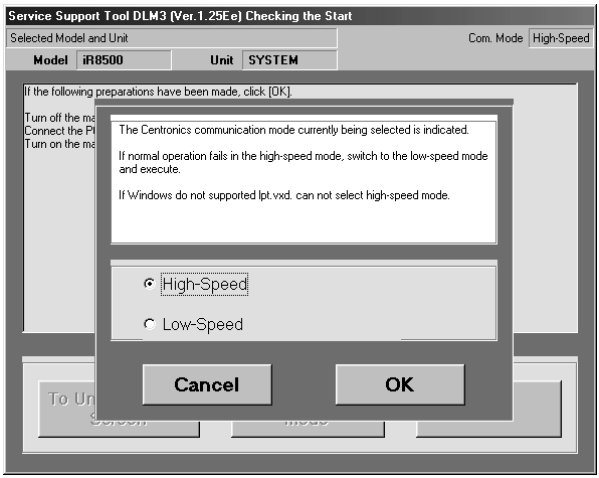


F06-703-03

5) Click 'Switch operation mode' to bring up the Centronics Communication Mode Change screen. Select 'High-Speed', and press 'OK' to move to step 6).

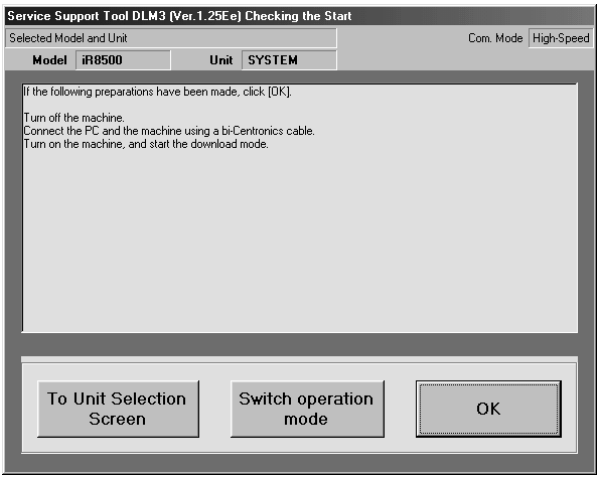
Memo

High-speed mode is not supported on Windows NT and Windows 2000.



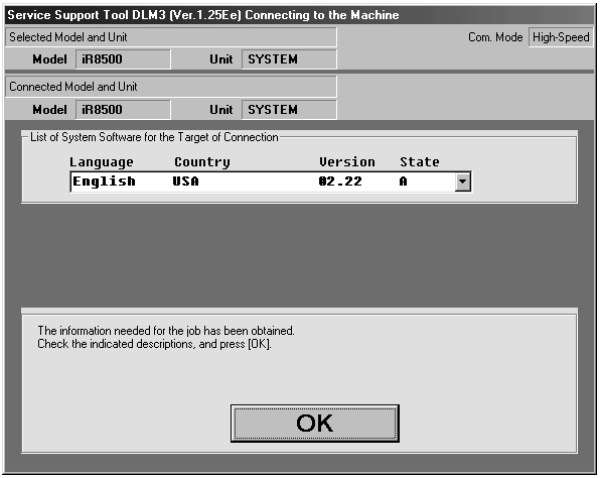
F06-703-04

6) Click 'OK' to start connection.



F06-703-05

7) When connection is done, the following screen will appear. Click 'OK'.



F06-703-06

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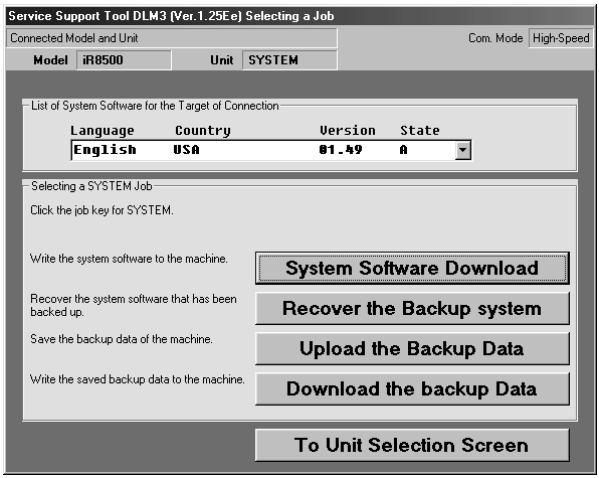
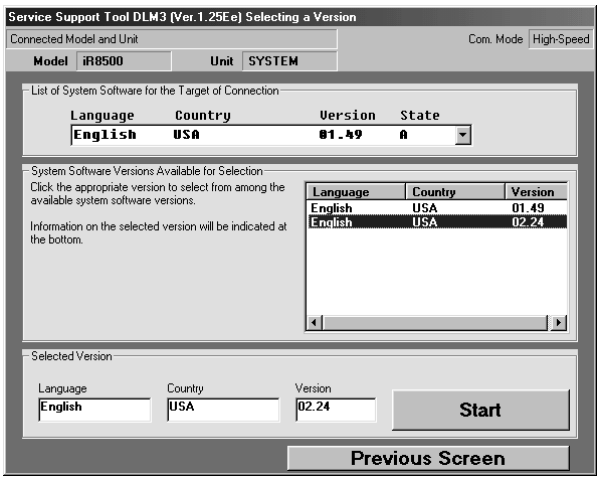
8) Select 'System Software Download' of the Service Support Tool screen.



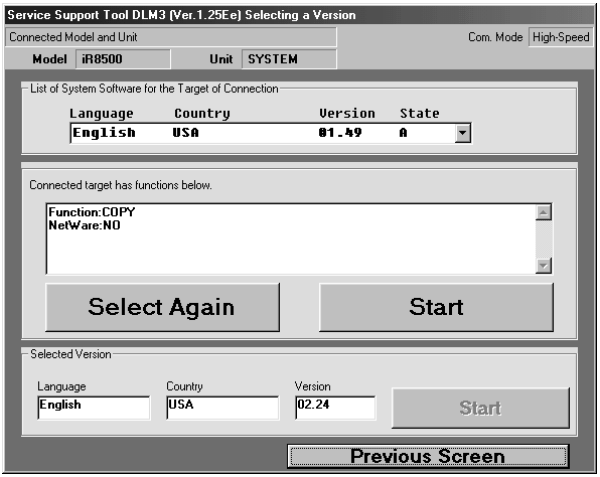
F06-703-07

9) Select the files suited to the language and the country in question from the 'list of software' on the Service Support Tool screen, and click 'Start'.



F06-703-08

10) The following screen will appear to indicate the types of software that will be downloaded: “Function: COPY/PRINTER” “NetWare: YES/NO.” If the indications are correct, click ‘Start’.



F06-703-09

Installing System Software with Different Functions
Normally, you cannot upgrade existing system software by means of downloading unless the old and new systems have the same functions; an attempt to do so will result in an error.

11) Check the progress bar, which indicates the progress of downloading.
12) When downloading ends, turn off the PC by making the following selections: OK>To Unit Selection Screen>OK>To Main Menu>Ending the Service Support Tool>End.

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7.3.3 After Downloading

1) Turn off the machine's main power switch, and disconnect its power plug.
2) Turn off the PC.
3) Disconnect the parallel cable from the PC and the machine.
4) If a network cable is connected, connect it to its correct location, and turn on the machine's main power switch.
5) When the machine has started up, start service mode to check the system version for the HDD: COPIER>DISPLAY>VERSION>MN-CONT.

7.4 Upgrading the BOOT ROM

7.4.1 Making Preparations

When you upgrade the machine's BOOT ROM, you will directly replace the contents of the ROM DIMM. Take full care.

1) Check to see that the machine's Data lamp is OFF.
2) Turn off the machine's main power switch, and disconnect the power plug and the network cable.

Limits on Preparing the BOOT ROM
You will not be able to prepare the BOOT ROM unless the following conditions are met:

- The model of the machine is the same; e.g., you cannot use the iR8500 BOOT ROM data to upgrade an iR5000.
- The parameter "function" (COPY or PRINTER) must match when downloading the system software; i.e., you cannot use the iR8500N (PS/PCL model) BOOT ROM data to upgrade an iR8500 (The same is true of from PS/PCL model to COPY).

Any attempt made in disregard of the above will cause a mismatch error when the machine runs a check before writing.

7.4.2 Connection

The following discussions assume the use of a network cable (cross cable).

Making Preparations

If you want to download firmware to the machine using a network, you need to set up the PC and the machine's network environment.

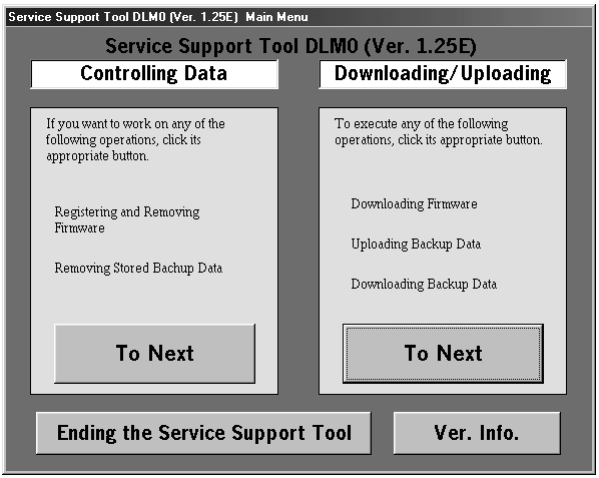
Use TCP/IP as the communication protocol for downloading form a network using the Service Support Tool. Connect the PC to the machine by way of the network, and check to make sure that all are ready for communication by sending a PING command from the PC or the machine.

1) Connect the machine's network connector (RJ-45) and the network connector of the PC using a network cable (cross cable).
2) Turn on the PC, and start up the Service Support Tool.
3) Connect the machine's power plug to the power outlet, and start service mode; make the following selections: COPIER>FUNCTION>SYSTEM>DOWNLOAD. Then, click 'OK' so that the machine will be in download standby mode (notation "STNDBY").

7.4.3 Preparing BOOT ROM

The discussions that follow assume upgrading an iR8500 (COPY model).

1) User 'Downloading/Uploading', select 'To Next'.



F06-704-01

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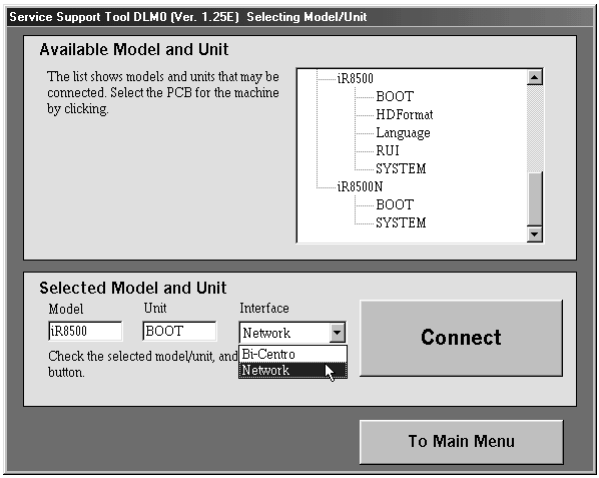
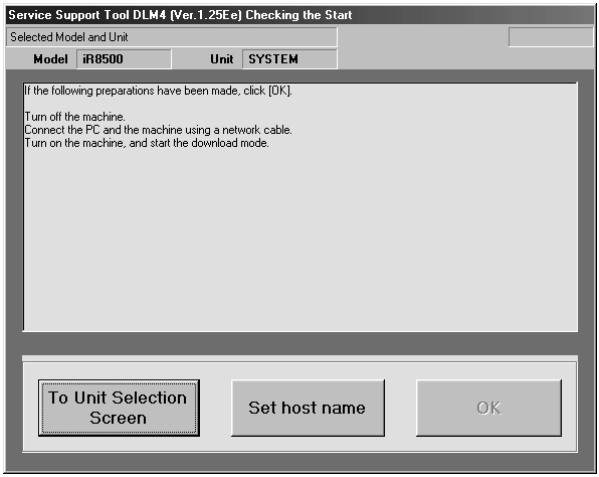
2) Select the correct BOOT, and select an interface (bi-Centronics or Network) (The example selects iR8500 for BOOT, and Network is selected for Interface).



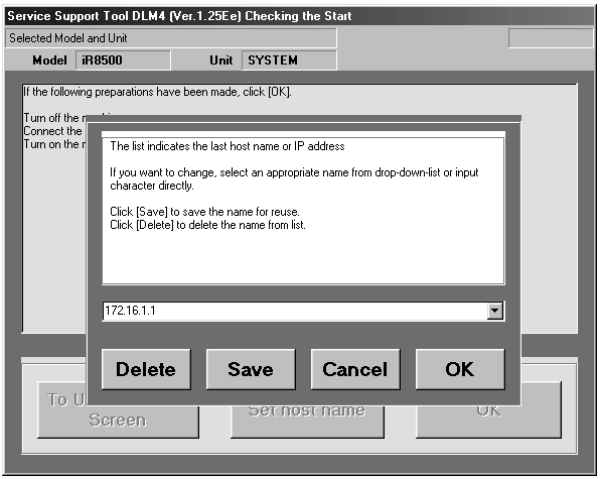
F06-704-02

3) To enter the IP address or the host name of the machine to connect, click 'Set host name'.



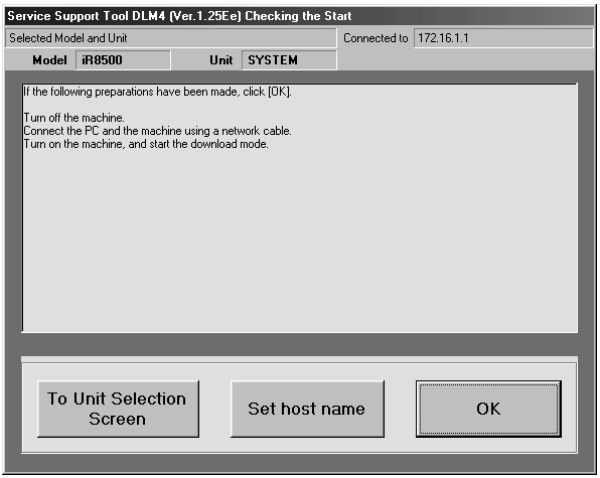
F06-704-03

4) Enter the IP address or the host name (here, 172.16.1.1), and click ‘Save’. Then, click ‘OK’.



F06-704-04

5) Check to see that the notation in the upper right indicates the IP address or the host name of the machine to connect; then, click ‘OK’ to start connection.



F06-704-05

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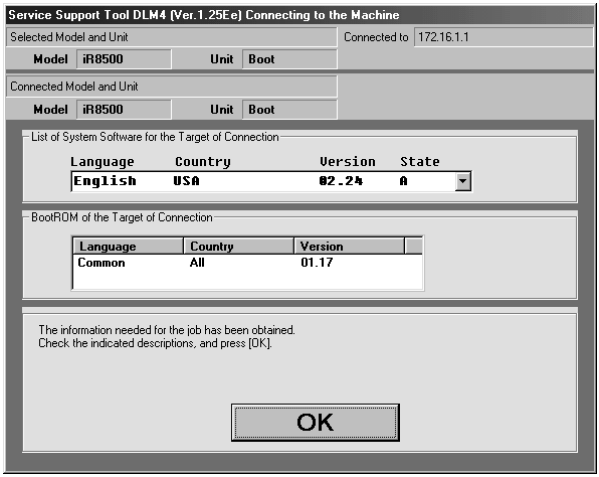
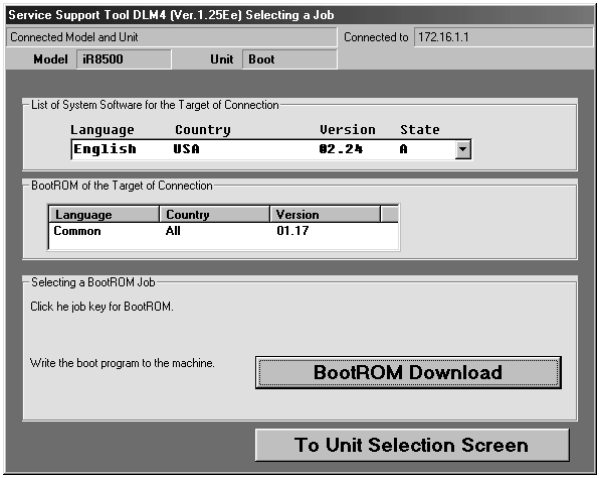
6) When connection is done, the following screen appears. Click 'OK'.



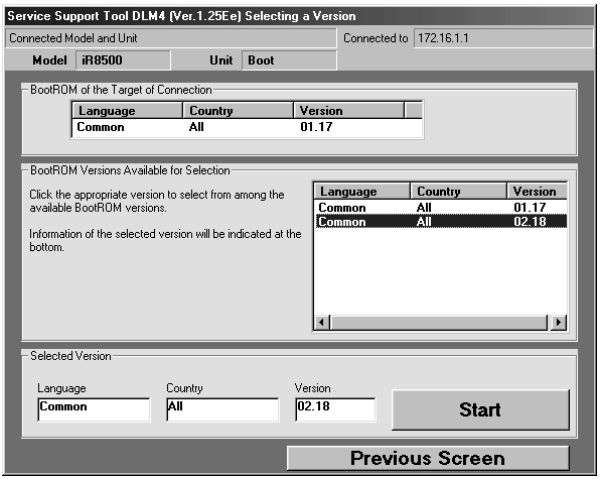
F06-704-06

7) Select 'BOOT ROM Download' on the Service Support Tool screen.



F06-704-07

8) Select the files for the version in question of the Service Support Tool from 'list of software'; then, click 'Start' to start downloading.



F06-704-08

9) See the progress bar, which indicates the progress of downloading.

Take full care so that the machine and the PC will not be turned off while downloading is taking place. Otherwise, they may fail to start up.

10) When downloading ends, turn off the PC by making the following selections: OK>To Unit Selection Screen>OK>To Main Menu>Ending the Service Support Tool>End.

7.4.4 After Downloading

1) Turn off the machine's main power switch, and disconnect the power plug.
2) Turn off the PC.
3) Disconnect the network cable (cross cable) and the PC from the machine.
4) If a network cable is connected, connect it to the correct location, and turn on the machine's main power switch.
5) When the machine has started up, start service mode, and check the version of the BOOT ROM: COPIER>DISPLAY>VERSION>BOOT-ROM.

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7.5 Formatting the HDD

If you have replaced the HDD, you must format it and then download the system software, RUI, and language.

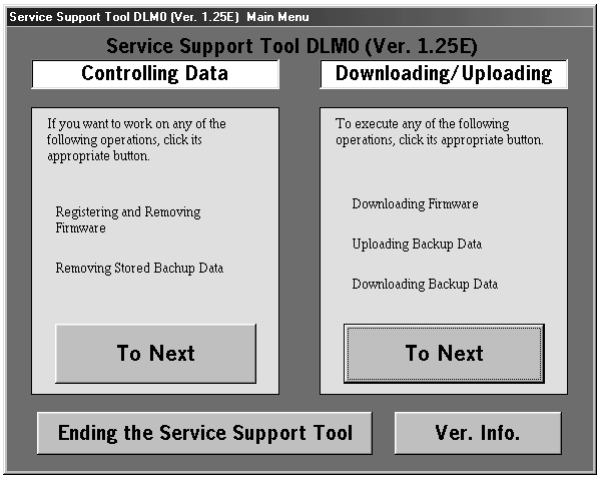
7.5.1 Making Connections

The discussions that follow assume the use of a parallel cable:

1) Using a parallel cable, connect the PC to the parallel connector on the left side of the controller.
   - At this time, the PC must remain OFF.
   - Connect the 25-pin connector of the bi-Centronics cable to the PC and the 36-pin connector to the machine.
2) Turn on the PC, and start up the Service Support Tool.
3) Connect the machine's power plug to the power outlet; while holding down '2' and '8' of the keypad at the same time, turn on the main power switch.

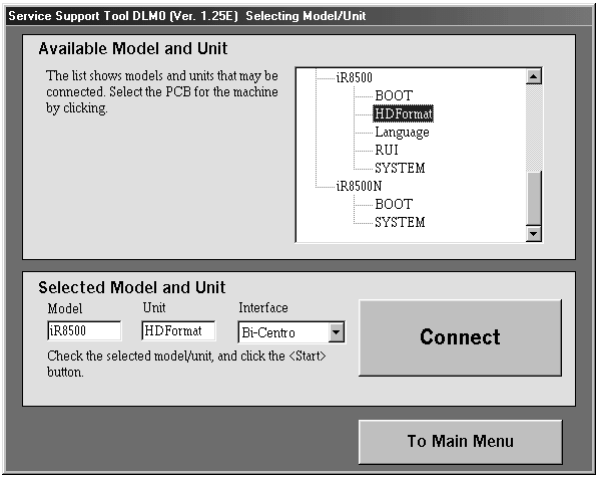
7.5.2 Starting Formatting

1) Under 'Downloading/Uploading', select 'To Next'.



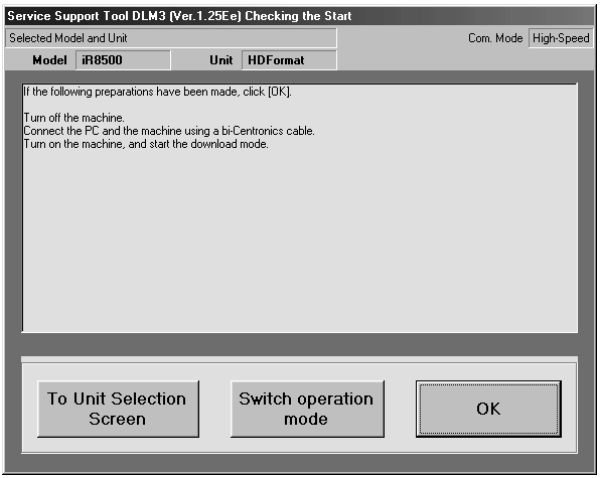
F06-705-01

2) Select 'HD Format', and select 'Connect'.



F06-705-02

3) At this time, if the notation in the upper right of the screen is 'High-Speed', go to step 5); if 'Low-Speed', go to step 4).



F06-705-03

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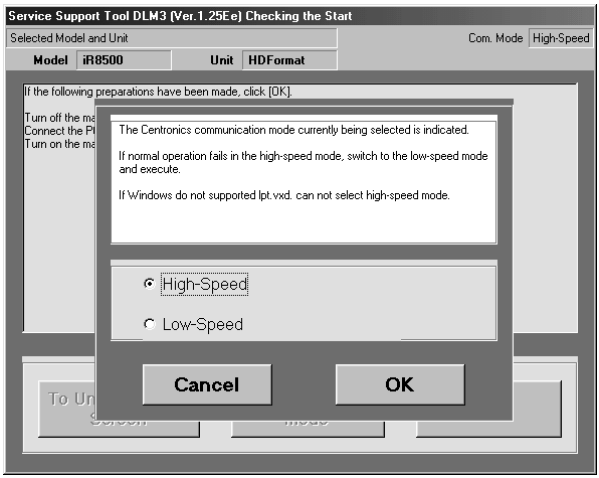
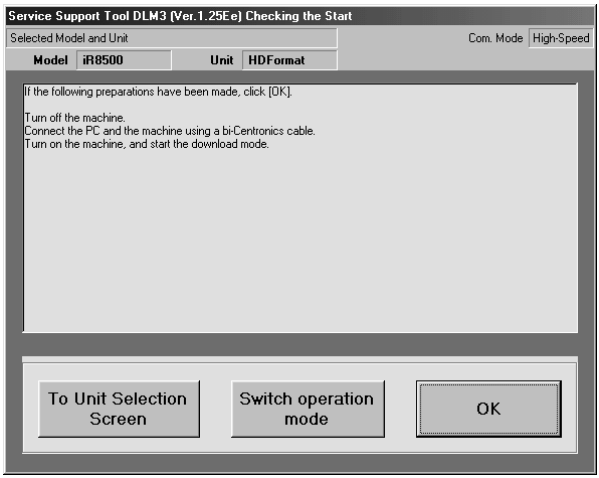
4) Click ‘change operation mode’ so that the Centronics Communication Mode change screen will appear. Select ‘high-speed’, and click ‘OK’; then, go to step 6).



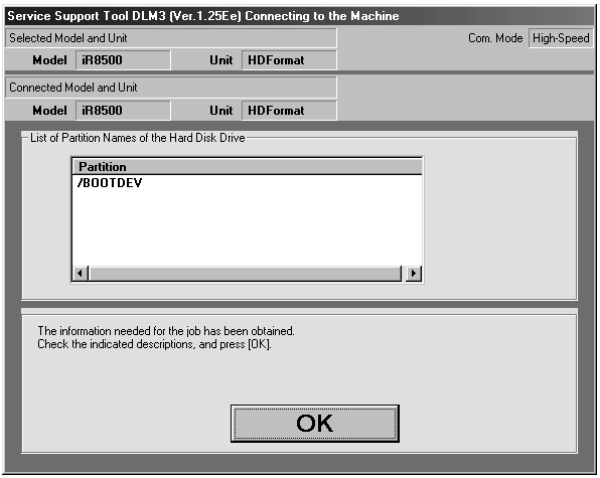
F06-705-04

5) Click ‘OK’ to start connection.



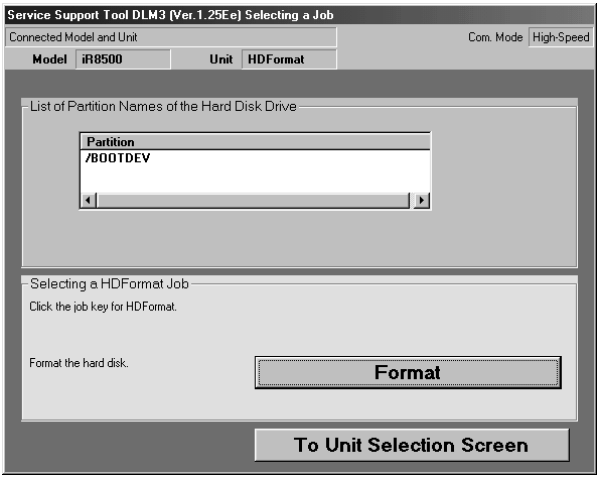
F06-705-05

6) When connection is done, the following screen will appear. Select 'OK'.



F06-705-06

7) When the Check screen appears, select 'Format'.



F06-705-07

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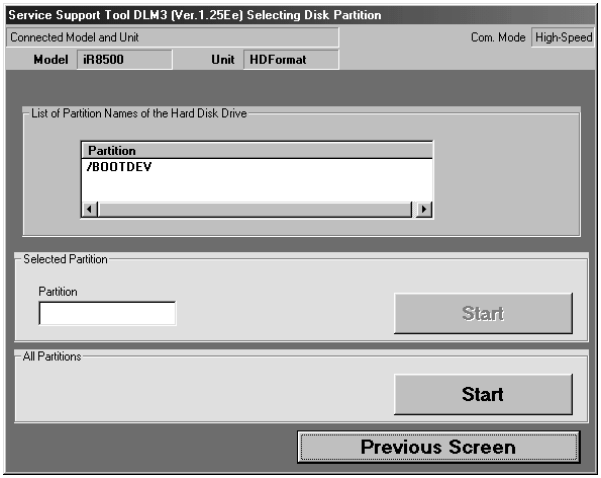
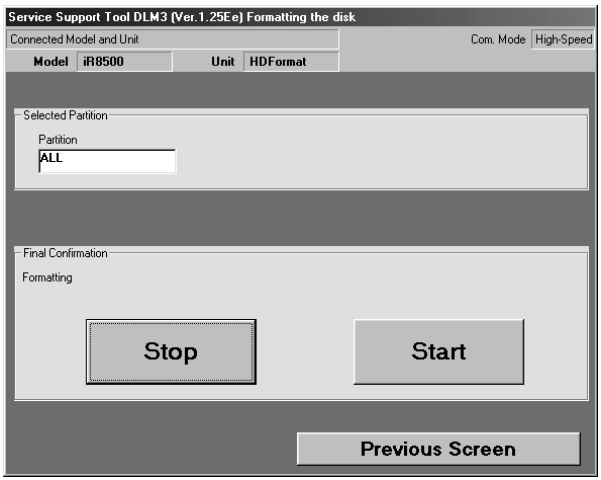
8) When the Start Check screen appears, select 'Start' to format all partitions.



F06-705-08

9) When the Start Check screen appears once again, select 'Start'.

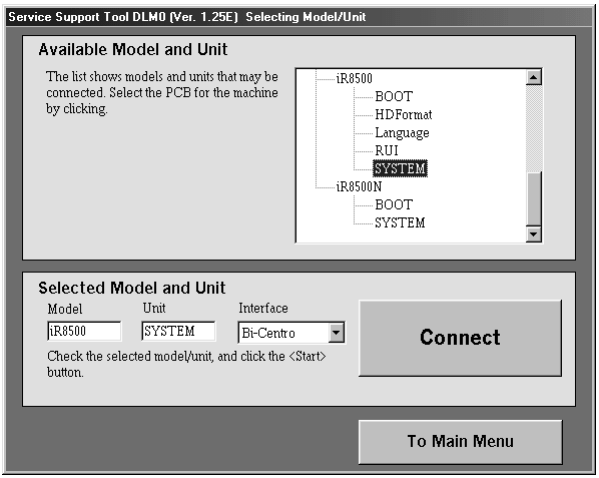


F06-705-09

10) When formatting is done, the message “Format Finished” appears. Click ‘OK’.

F06-705-10

11) To continue downloading system, select ‘To Unit Selection Screen’, and click ‘OK’. Then, start downloading system.



F06-705-11

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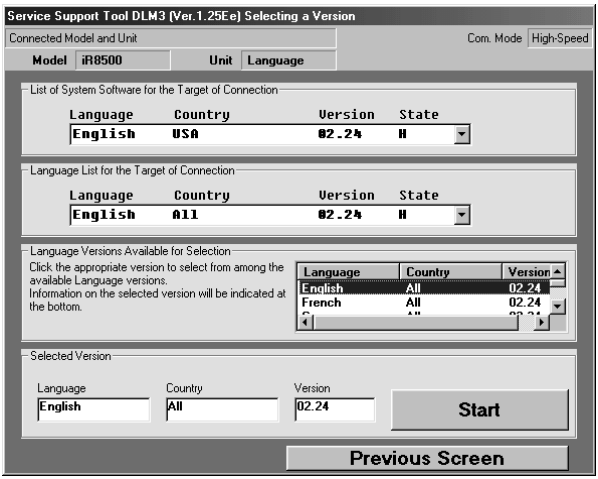
12) When the system downloading ends, install the RUI and the Language module in the same way.



F06-705-12

7.5.3 Points to Note When Formatting the Hard Disk

1. If you have formatted the hard disk, you must also download the system software at the same time. Otherwise, 'E602-0002' will be indicated when you turn on the power.
   If the system software is yet to be installed to the hard disk, the hard disk may still be formatted or the system software may be downloaded in download mode.
   Connecting to the Network (using network cable)
2. If you want to install the Language module after installing the system software, you must be sure that its version is compatible with the version of the system software. If you install a Language module not compatible with the system software in question and, in addition, if that language is selected in user mode, 'E744-0001' will be indicated.
3. If you installed the system software after formatting the hard disk, you may notice a faulty image on the control panel display. This is a normal condition, and will disappear when you turn off and then on the machine twice.

7.6 Upgrading by Replacing the DIMM/ROM

The following items may be upgraded by replacing the DIMM/ROM; the DIMM/ROM will be provided as a service part on its own:

- Copier
  Reader controller PCB: by replacement of flash ROM DIMM [1]; J1106
  DC controller PCB: by replacement of flash ROM DIMM [2]; J521
  Main controller PCB: by replacement of BOOT ROM [7]; J1010, see MEMO

DADF-J1
  ADF controller PCB: by replacement of ROM [4]; IC1 (DIP type)

Finisher-K1/K1N/K2/K2N
  by replacement of ROM [5]; IC110 (DIP type)

Saddle Finisher-K3/K3N/K4/K4N
  Finisher controller PCB: by replacement of ROM [5]; IC110 (DIP type)
  Saddle stitchere controller PCB: by replacement of ROM [6]; Q2 (DIP type)

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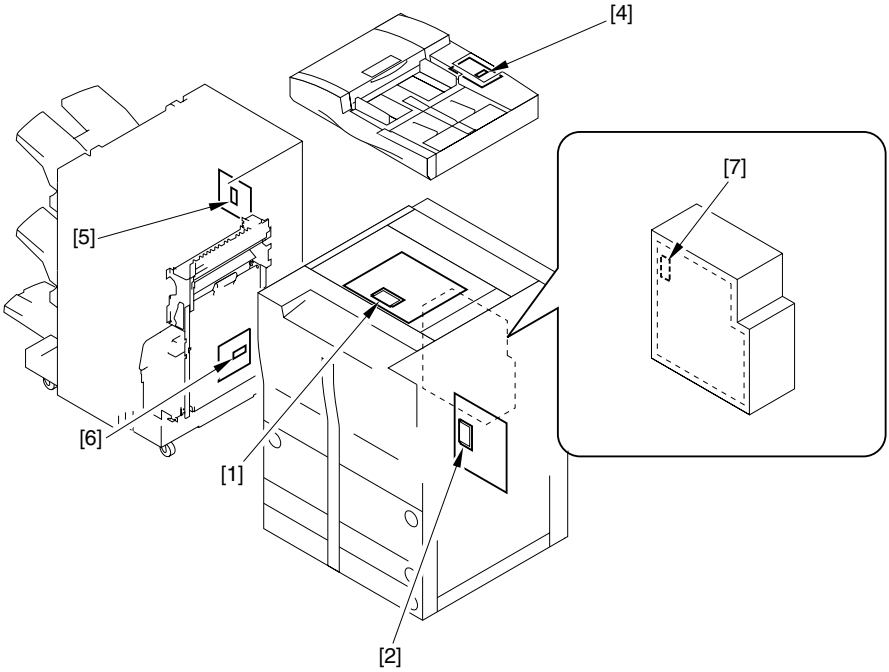
Memo

In addition to the program for the master CPU, the ROM of the finisher controller PCB contains programs for the slave CPU, requiring you to upgrade the slave CPU software whenever you have replaced the ROM. For details, see the Service Manual of the finisher.

The BOOT ROM [7] on the main controller PCB may be upgraded using a PC. For details, see the descriptions under 7 “Upgrading.”



F06-706-01

8 Backing Up Data

8.1 Outline

Using the Service Support Tool, you can back up the data of the SRAM mounted to the main controller PCB.

The SRAM contains the following items of data:

- Service mode settings
- User mode settings
- Various MACHINE DATA

Once you have backed up the data, you may write it to the main controller PCB after replacing the PCB; or, you can simplify the work involved in entering service mode or user mode settings.

It is recommended to back up the data whenever possible using the Service Support Tool when you have updated the service mode settings or the user mode settings.

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8.2 Backing Up Data

8.2.1 Making Preparations

- Install the system software to the Service Support Tool, making sure that its version is the same as that of the machine in question.
- Check to make sure that the machine's Data lamp is OFF.
- Turn off the machine's main power switch, and disconnect the power plug; as necessary, disconnect the network cable.

8.2.2 Making Connections

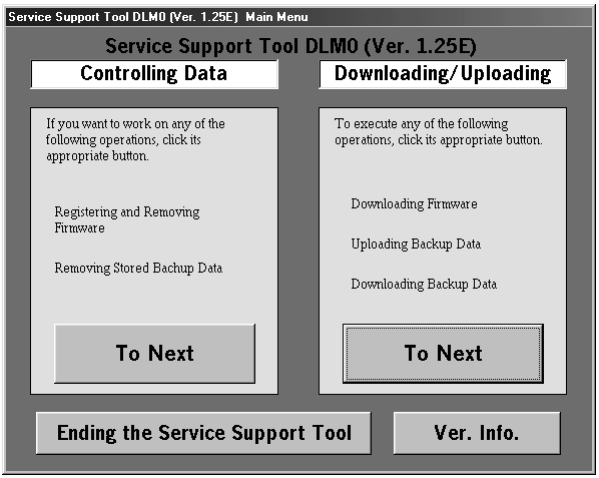
The discussions that follow assume the use of a parallel cable:

1) Using a parallel cable, connect the PC to the parallel connector on the right side of the controller.
   - At this time, the PC must remain OFF.
   - Connect the 25-point connector of the parallel cable to the PC and the 36-pin connector to the machine.
2) Turn on the power switch of the PC, and start up the Service Support Tool.
3) Connect the machine's power plug to the power outlet, and turn on its main power switch.
4) Start service mode.
5) Make the following selections so that the machine will enter download standby mode (notation "STNDBY"): COPIER>FUNCTION>SYSTEM>DOWNLOAD.

You can select 'network' as the interface for data backup. Here, the use of a bi-Centronics cable is assumed.

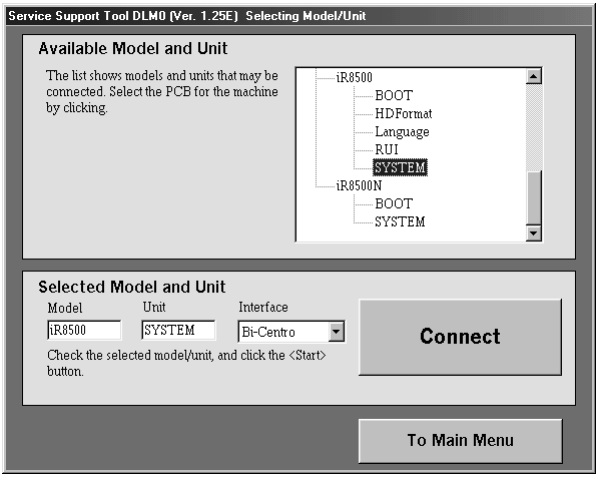
8.2.3 Backing Up Data

1) Under 'Downloading/Uploading', select 'To Next'.



F06-802-01

2) Select 'SYSTEM', and select 'Connect'. The discussions that follow assume the use of a bi-Centronics cable as the interface.



F06-802-02

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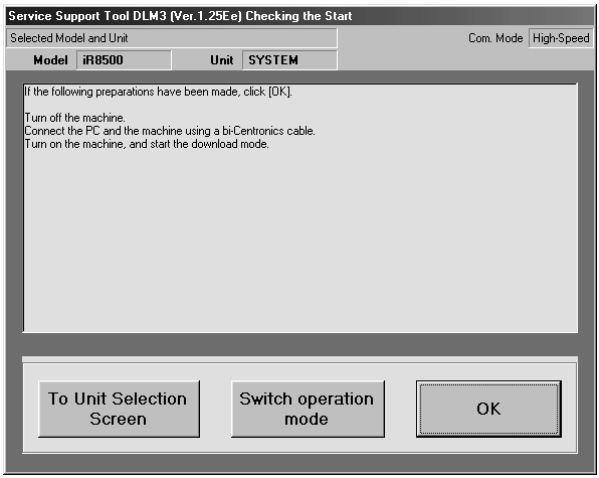
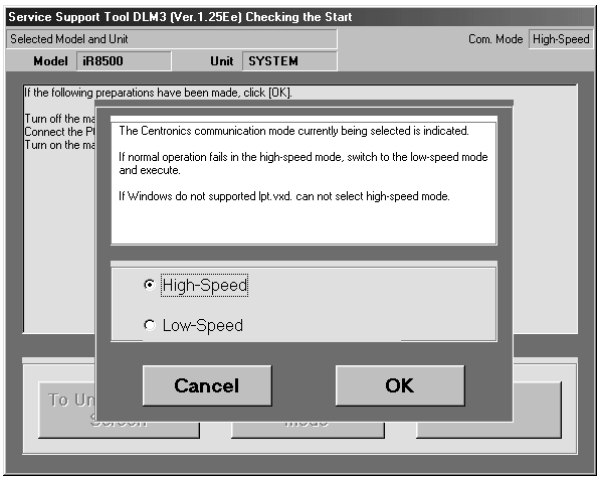
3) At this time, if the notation in the upper right of the screen is ‘High-Speed’, go to step 5); if ‘Low-Speed’, go to step 4).



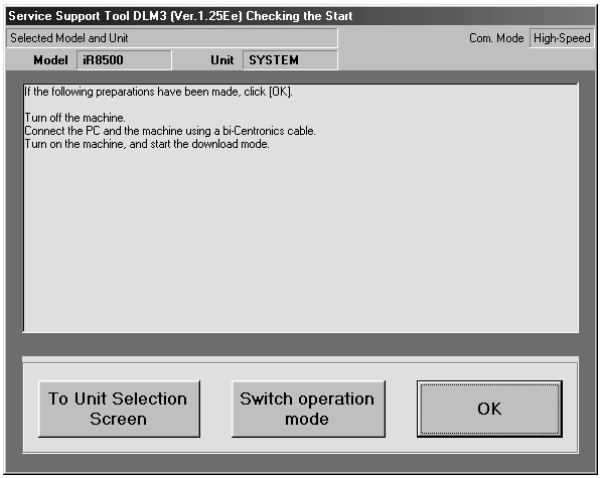
F06-802-03

4) Click ‘switch operation mode’ to bring up the Centronics Communication Mode Change screen, and select ‘High-Speed’. Then, select ‘return to unit select screen’, and start over with step 2).



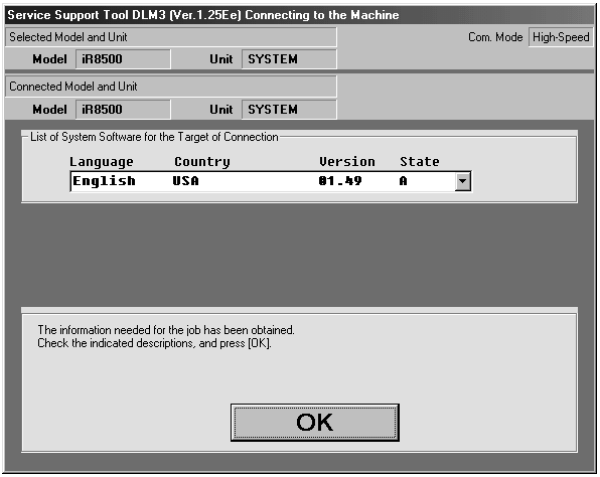
F06-802-04

5) Click 'OK' to start connection.



F06-802-05

6) When connection is done, the following screen appears. Click 'OK'.



F06-802-06

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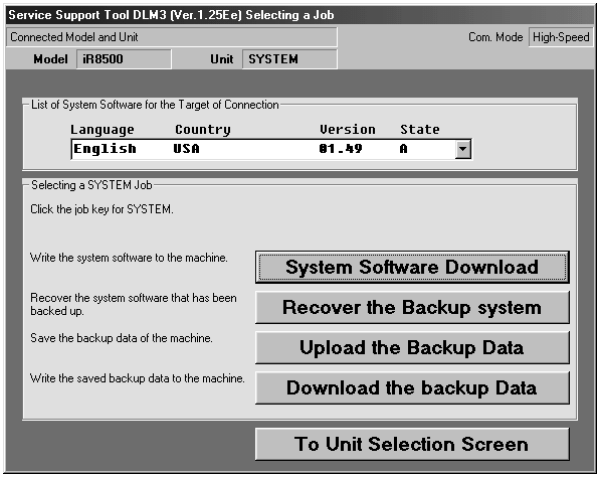
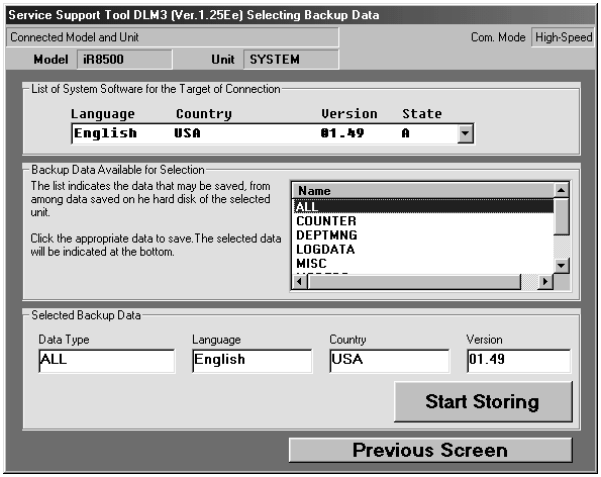
7) Select 'Upload the Backup Data' on the Service Support Tool screen.



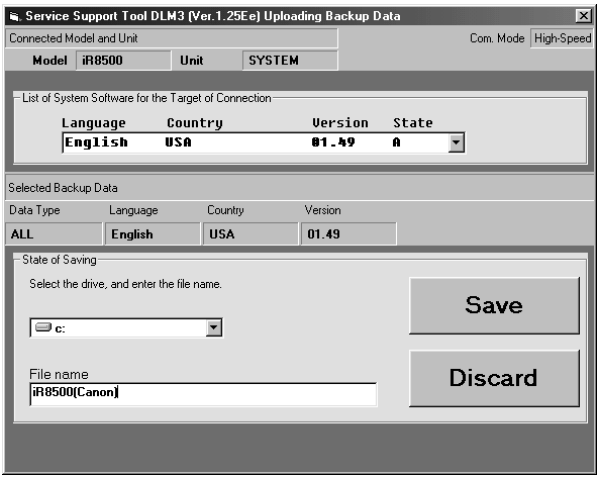
F06-802-07

8) Select 'ALL', and select 'Start Storing'.



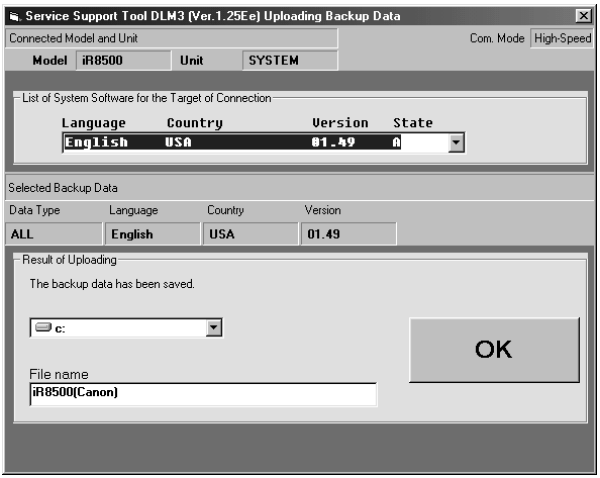
F06-802-08

9) See the progress bar, indicating the progress of the save operation.
10) Select the drive to save the data to, and enter the file name; the, select 'Save'.



F06-802-09

11) When the selected file has been stored on the selected drive, the following screen will appear; make the following selections to end the Service Support Tool: OK>To Unit Selection Screen>OK>To Main Menu>Ending the Service Support Tool>End.



F06-802-10

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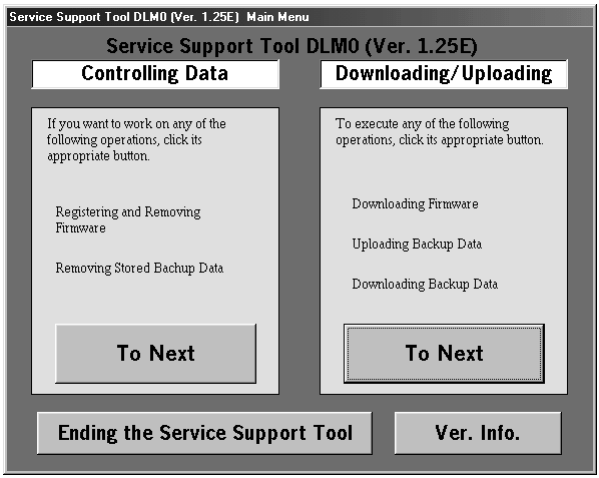
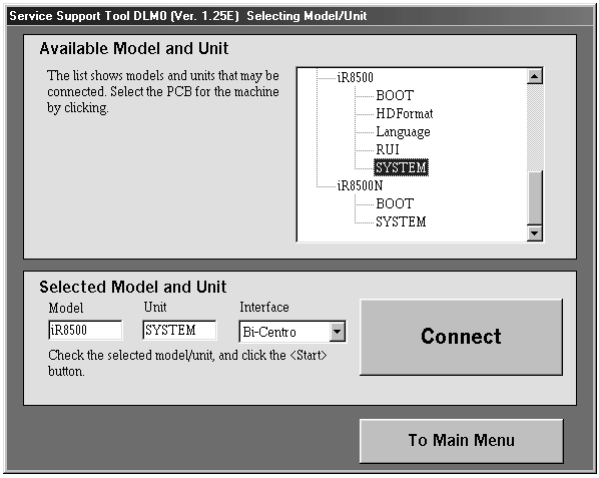
8.2.4 Downloading Backup Data

1) Under 'Downloading/Uploading', select 'To Next'.



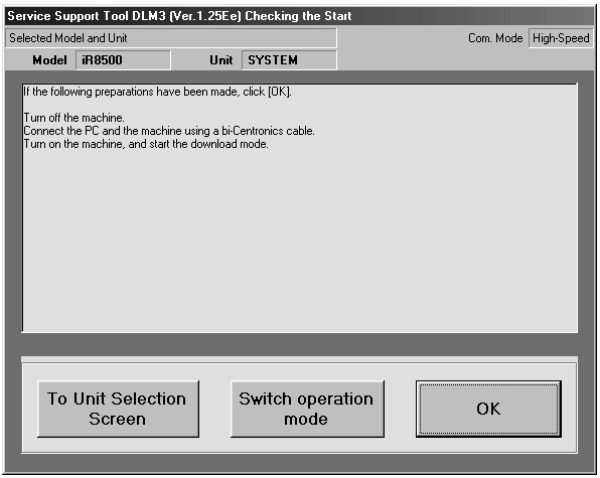
F06-802-11

2) Select 'SYSTEM', and select 'Connect'.



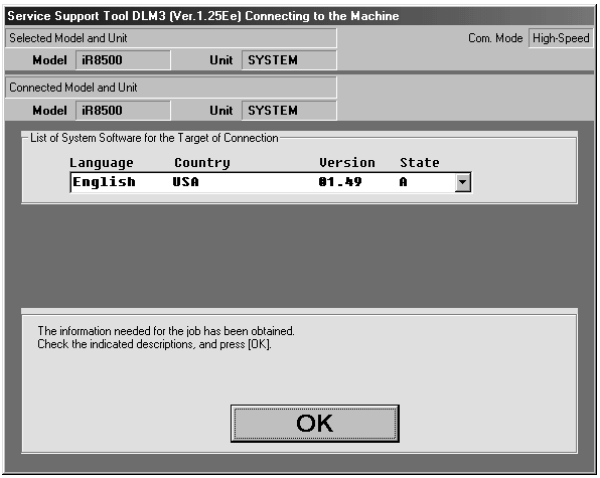
F06-802-12

3) Select 'OK', and start connection.



F06-802-13

4) When connection is done, the following screen appears. Click 'OK'.



F06-802-14

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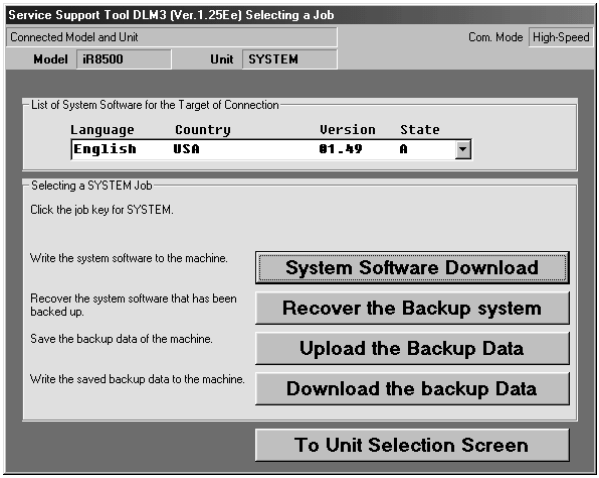
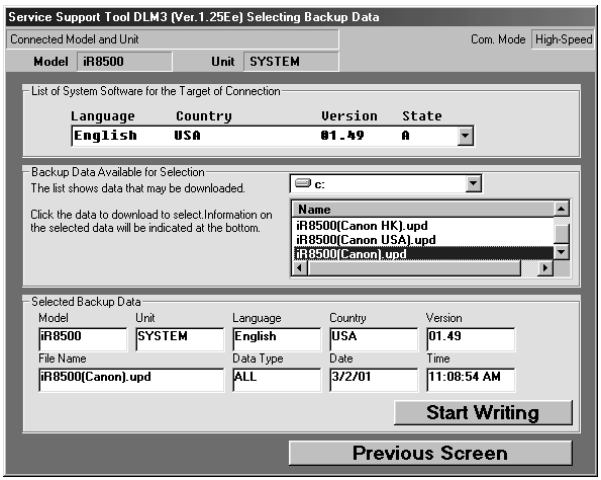
5) Select 'Download the backup Data'.



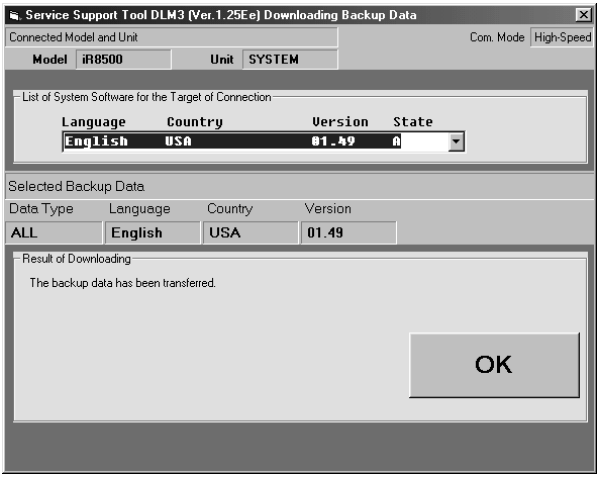
F06-802-15

6) Select the file to download, and select 'Start Writing'.



F06-802-16

7) See the progress bar, indicating the progress of the downloading operation. At the end, the following screen will appear. Select 'OK'.



F06-802-17

8) Make the following selections to end the Service Support Tool: To Unit Selection Screen>OK>To Main Menu>Ending the Service Support Tool>End.

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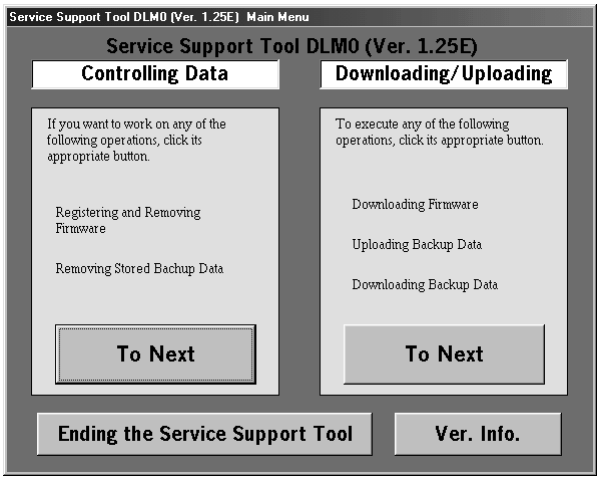
8.2.5 Managing Backup Data

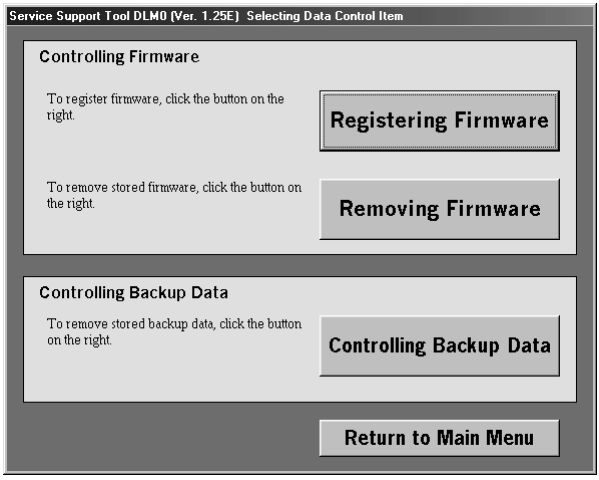
You can delete backup data that has become obsolete as follows:
You need not connect a PC to the machine to do so.

1) Under 'Controlling Data', select 'To Next'.



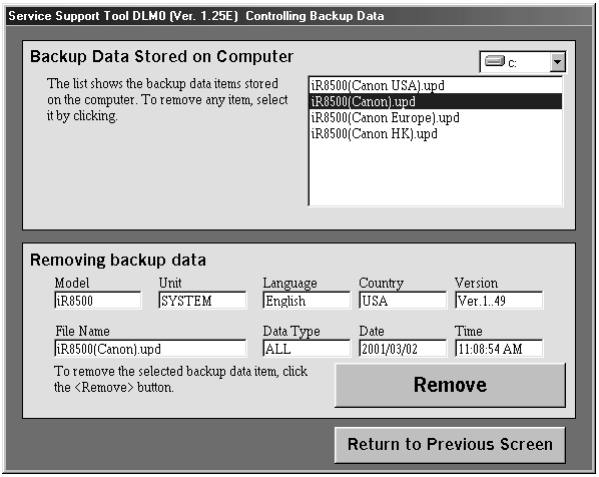
F06-802-18

2) Select 'Controlling Backup Data'.



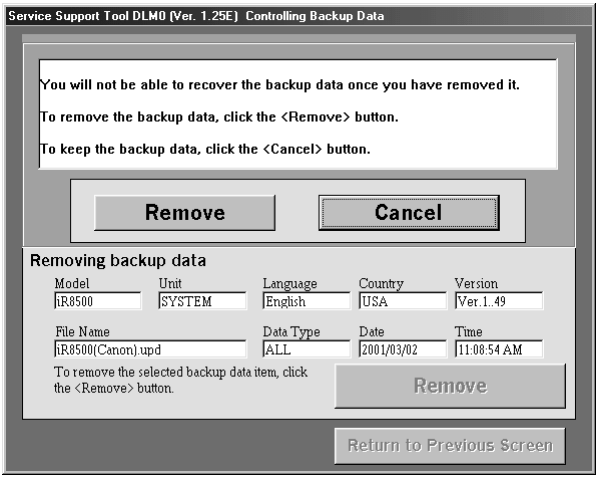
F06-802-19

3) Select the file to delete from the list of 'Backup Data Stored on Computer'; then select 'Remove'.



F06-802-20

4) When the Delete Check screen appears, check the description for the selected file, and select 'Remove'.



F06-802-21

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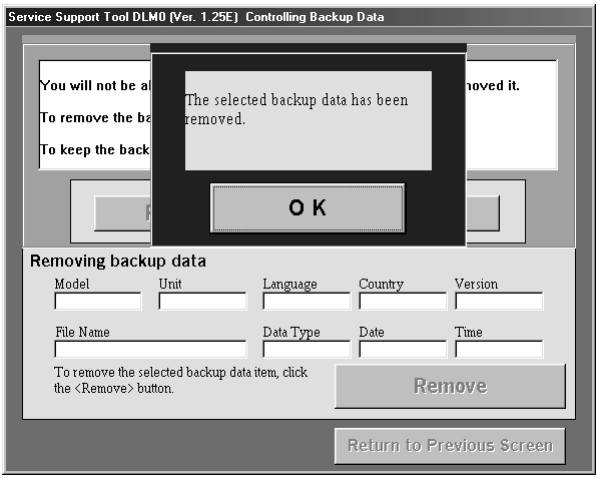
5) When the Delete Finish screen appears, click 'OK'. Make the following selections to end the Service Support Tool: Return to Previous Screen>Return to Main Menu>Ending the Service Support Tool>End.



F06-802-22

APPENDIX

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A4, 2 Originals, Single-Sided Copy

F0A-100-01

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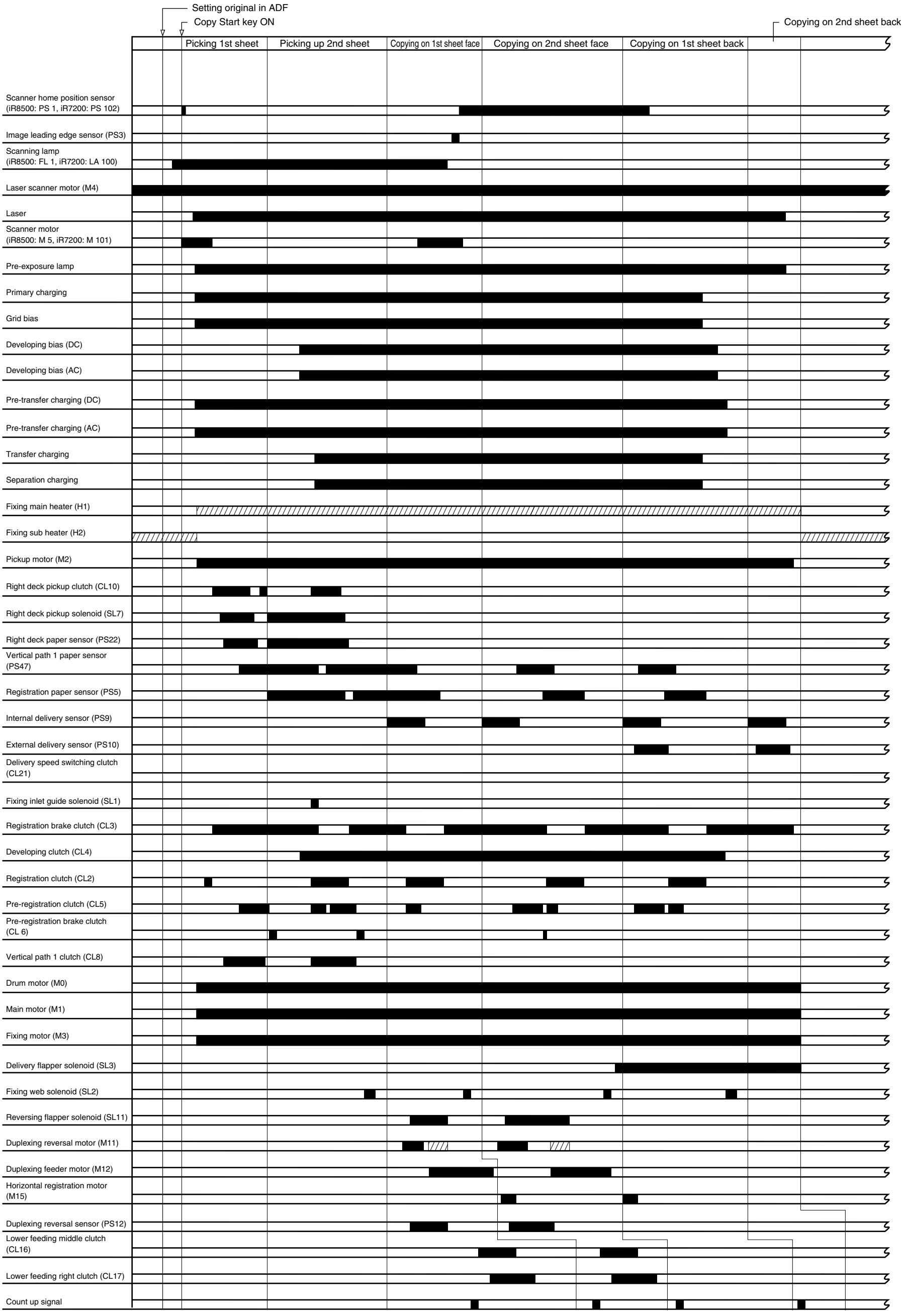
A4, 4 Originals, Double-Sided Copy



F0A-100-02

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2 LIST OF SIGNALS/ABBREVIATIONS

The following is a list of the signals and abbreviations used in this chapter and the circuit diagrams.

The abbreviations in parentheses are electrical signals, but are analog signals, which cannot be expressed in terms of '1' or '0'. Others are digital signals, which may be expressed in terms of '1' or '0'.

AFTER_JOIN_PS	Post-confluence sensor detection signal
ADF OPEN*	Copyboard cover open/closed sensor detection signal
BUFFER_CL	Hopper internal magnet roller drive clutch drive command
BUFFER_MOTOR(-)	Hopper internal toner feeder motor drive command 2
BUFFER_MOTOR(+)	Hopper internal toner feeder motor drive command 1
BUFFER_NG	Hopper internal toner lower limit sensor detection signal
BUFFER_WARNING	Hopper internal toner sensor detection signal
C3_FEED_CL	Cassette 3 pickup sensor detection signal
C3_FEED_PS	Cassette 3 pickup clutch drive command
C3_LENGTH0	Cassette 3 paper length sensor detection signal
C3_LIFT_PS	Cassette 3 lifter sensor detection signal
C3_LIFTER_MOTOR	Cassette 3 lifter motor drive command
C3_OPEN_PS	Cassette 3 open/closed sensor detection signal
C3_PAPER_PS	Cassette 3 paper sensor detection signal
C3_PICKUP_SL	Cassette 3 pickup solenoid drive command
C3VR	Cassette 3 paper width volume detection signal
C4_FEED_CL	Cassette 4 pickup clutch drive command
C4_FEED_PS	Cassette 4 pickup sensor detection signal
C4_LENGTH0	Cassette 4 paper length sensor detection signal
C4_LIFT_PS	Cassette 4 lifter sensor detection signal
C4_LIFTER_MOTOR	Cassette 4 lifter motor drive command
C4_OPEN_PS	Cassette 4 open/closed sensor detection signal
C4_PAPER_PS	Cassette 4 paper sensor detection signal
C4_PICKUP_SL	Cassette 4 pickup solenoid drive command
C4VR	Cassette 4 paper width volume detection signal
CARTRIGE_DETECT	Cartridge detecting switch detection signal
CARTRIGE_MOTOR-	Cartridge internal toner feeder motor drive command
CARTRIGE_MOTOR+	Cartridge internal toner feeder motor drive command
CARTRIGE_OPEN_PS	Toner cartridge cover open/closed sensor detection signal
CLAW_JAM	Fixing claw jam sensor detection signal
CURL_FAN_STOP	De-curling fan lock detection signal
D_SENS3*	Original size sensor detection signal 3
DCP_FAN1_STOP	Power supply cooling fan 1 lock detection signal
DCP_FAN2_STOP	Power supply cooling fan 2 lock detection signal
DECK_PULL_PS	Front deck (left) feeding sensor detection signal

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DEV_FAN_STOP	Developing fan lock detection signal
DEV_SLEEVE_CL	Developing cylinder deceleration clutch drive command
DEV1_SLEEVE_CL	Developing clutch drive command
DEVELOP_IS	Developing assembly internal toner sensor detection signal
DOCUMENT_TOP	Image leading edge sensor detection signal
DRUM_FAN_STOP	Drum fan lock detection signal
DRUM_MOTOR_LOCK	Drum motor lock detection signal
DRUM_MOTOR_ON	Drum motor drive command
DUP-INV_PS	Duplexing reversal sensor detection signal
EXHAUST_FAN_STOP	Fixing assembly heat discharge fan lock detection signal
EXIT_DEL_PS	External delivery sensor detection signal
EXIT_FAN1_LOCK	Delivery adhesion-proofing fan lock detection signal
FEED_FAN_STOP	feeding fan lock detection signal
FEED_MOTOR_FG	Pickup motor frequency signal
FEED_MOTOR_ON	Pickup motor drive command
FIXEXIT_DEL_PS	Fixing feeding unit outlet sensor detection signal
FL_TH	Scanning lamp thermal sensor detection signal
FLAP_SL	Delivery flapper solenoid drive command
FREAD_FAN_STOP	Stream reading fan lock detection signal
FRONT_DR_OPEN	Front cover open/closed detecting switch detection signal
FRONT_JOIN_PS	Pre-confluence sensor detection signal
FUSE_M_LOCK	Fixing motor lock detection signal
FUSE_M_ON	Fixing motor drive command
GLASS_PS	Copyboard glass sensor detection signal
HPSENS	Scanner home position sensor detection signal
INT_DEL_PS	Internal delivery sensor detection signal
INV_ERR	Inverter error signal
INV_FAN_STOP	Inverter cooling fan lock detection signal
INV_GUIDE_SL	Reversing flapper solenoid drive command
INV_PS	Reversal sensor detection signal
LAMP_ON	Scanning lamp drive command
LASER1_FAN_STOP	Scanner cooling fan lock detection signal
LASER2_FAN_STOP	Laser driver cooling fan lock detection signal
LDECK_FEED_CL	Deck (left) pickup clutch drive command
LDECK_FEED_PS	Front deck (left) pickup sensor detection signal
LDECK_LIFT_MOTOR(24VU)	Front deck (left) lifter motor drive command
LDECK_LIFT_PS	Front deck (left) lifter sensor detection signal
LDECK_LIMIT_PS	Front deck (left) limit sensor detection signal
LDECK_OPEN_PS	Front deck (left) open/closed sensor detection signal
LDECK_PAPER_PS	Front deck (left) paper sensor detection signal
LDECK_PICKUP_SL	Front deck (left) pickup solenoid drive command
LDECK_PLEVEL_M	Front deck (left) paper level middle sensor detection signal
LDECK_PLEVEL_U	Front deck (left) paper level high sensor detection signal
LDECK_PULL_CL	Deck (left) feeding clutch drive command

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LOCK	System fan lock detection signal
LOWPASS_C_CL	Lower feeding middle clutch drive command
LOWPASS_R_CL	Lower feeding right clutch drive command
MAIN_MOTOR_FG	Main motor frequency signal
MAIN_MOTOR_ON	Main motor drive command
MAIN_TENP	Fixing main thermistor detection signal
MLT_CULA_ENTRY	Manual feed sensor detection signal
MLT_DR_OPEN	Manual feed tray cover open/closed sensor detection signal
MLT_FEED_CL	Manual feed tray pickup clutch drive command
MLT_PAPER_PS	Manual feed tray paper sensor detection signal
MLT_PICKUP_SL_BACK	Manual feed pickup clutch solenoid drive command
MLT_PICKUP_SL_PULL	Manual feed pickup clutch solenoid drive command
MLT_PULL_CL	Manual feed tray feeding clutch drive command
MLT_VOLUME	Manual feed tray paper width volume detection signal
MUTI DOOR OPEN	Manual feed tray cover open/closed detecting sensor detection signal
OAI_SIZE3_ON/OFF	Original size sensor ON/OFF detection signal 3
OAI_SIZE4_ON/OFF	Original size sensor ON/OFF detection signal 4
OPT_HP1	Scanner home position sensor detection signal
OPT_MOTOR_FAN_STOP	Scanner motor cooling fan lock detection signal
ORI_SIZE1_ON/OFF	Original size sensor ON/OFF detection signal 1
ORI_SIZE2_ON/OFF	Original size sensor ON/OFF detection signal 2
PATH1_CL	Vertical path 1 clutch drive command
PATH1_PS	Vertical path 1 paper sensor detection signal
PATH2_CL	Vertical path 2 clutch drive command
PATH2_PS	Vertical path 2 paper sensor detection signal
PATH3_CL	Vertical path 3 clutch drive command
PATH3_PS	Vertical path 3 paper sensor detection signal
PATH4_CL	Vertical path 4 clutch drive command
PATH4_PS	Vertical path 4 paper sensor detection signal
POLYGON_FAN_STOP	Laser scanner fan lock detection signal
POST_FAN_STOP	Pre-transfer charging fan lock detection signal
POST_M.C_BK	Pre-transfer charging wire cleaning motor drive command (reverse)
POST_M.C_FW	Pre-transfer charging wire cleaning motor drive command (forward)
POTENTIAL_ON	Potential sensor detection signal
POTENTIAL_SIG	Potential sensor detection signal
PRESSING_PLATE_OPEN	Copyboard cover open/closed sensor detection signal
PRIM_FA_STOP	Primary charging assembly fan lock detection signal
PRINARY_V.C_BK	Primary charging wire cleaning motor drive command (reverse)
PRINARY_V.C_FV	Primary charging wire cleaning motor drive command (forward)
PRIREGI_BRAKE_CL	Pre-registration brake clutch drive command
PRIREGI_CL	Pre-registration clutch drive command
RDECK_FEED_CL	Front deck (right) pickup clutch drive command

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RDECK_FEED_PS	Front deck (right) pickup sensor detection signal
RDECK_LIFT_MOTOR(24VU)	Front deck (right) lifter motor drive command
RDECK_LIFTER_PS	Front deck (right) lifter sensor detection signal
RDECK_LINIT_PS	Front deck (right) limit sensor detection signal
RDECK_OLEVEL_U	Front deck (right) paper level high sensor detection signal
RDECK_OPEN_PS	Front deck (right) open/closed sensor detection signal
RDECK_PAPER_PS	Front deck (right) paper sensor detection signal
RDECK_PICKUP_SL	Front deck (right) pickup solenoid drive command
RDECK_PLEVEL_M	Front deck (right) paper level middle sensor detection signal
RDECK_PULL_PS	Front deck (right) feeding sensor detection signal
REGI_BRAKE_CL	Registration brake clutch drive command
REGIST_CL	Registration clutch drive command
REGIST_PS	Registration paper sensor detection signal
REVER_OPEN_PS	Fixing/feeding unit releasing lever sensor detection signal
ROW_DR_OPEN	Lower right cover open/closed sensor detection signal
RUP_DR_OPEN	Upper right cover open/closed sensor detection signal
SEP_FAN_STOP	Separation fan lock detection signal
SIDE_REGI_PS	Horizontal registration sensor detection signal
SIZE1	Original size sensor detection signal 1
SIZE2	Original size sensor detection signal 2
SIZE3	Original size sensor detection signal 3
SIZE4	Original size sensor detection signal 4
SPEED_DEL_CL	Delivery speed switching clutch drive command
SUB_TENP	Fixing sub thermistor detection signal
T/S_W.C_OUT1	Transfer/separation charging wire cleaning motor drive command 1
T/S_W.C_OUT2	Transfer/separation charging wire cleaning motor drive command 2
UNITLOCK_SL_BACK	Fixing feeding unit locking solenoid drive command (back)
UNITLOCK_SL_PULL	Fixing feeding unit locking solenoid drive command (pull)
U-TURN_PS	U-turn sensor detection signal
VASIE_TONER_PACKED_DIC	Waste toner clog detecting switch detection signal
WASTE_TONER_OVER_PS	Waste toner case full sensor detection signal
WEB_LESS	Fixing cleaning belt sensor detection signal
WEB_SL	Fixing cleaning belt solenoid drive command
WEB_WARNING	Fixing cleaning belt warning sensor detection signal

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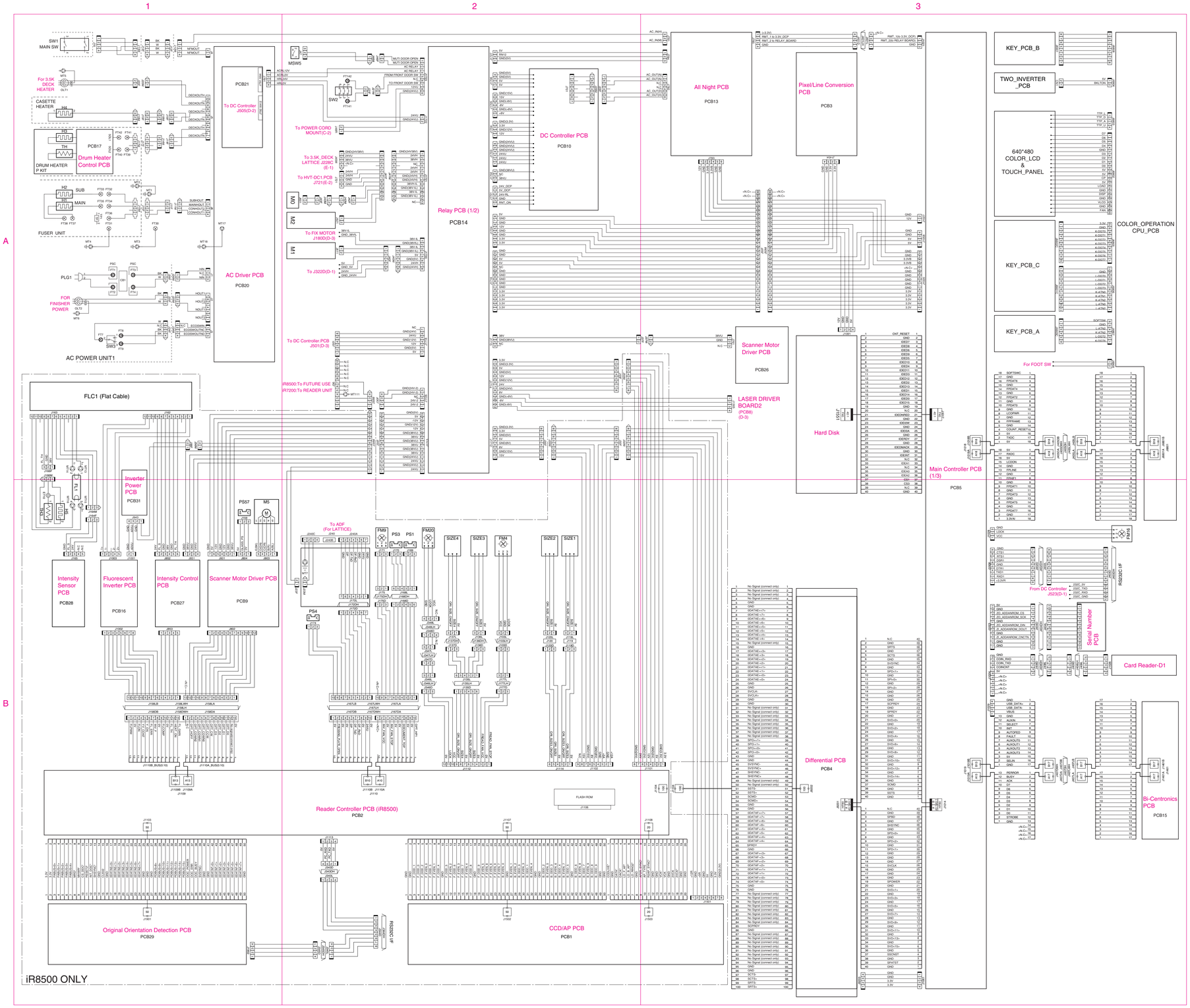

	MAP	NAME
PS1	B-2	Scanner Home Position Sensor
PS3	B-2	Image Leading Edge Sensor
PS4	B-2	ADF Open/Closed Sensor
PS57	B-1	Copyboard Glass Sensor
MSW5	A-2	Manual Feed Tray Cover Open/Closed Detection Sensor
SIZE1	B-2	Original Size Sensor 1
SIZE2	B-2	Original Size Sensor 2
SIZE3	B-2	Original Size Sensor 3
SIZE4	B-2	Original Size Sensor 4
TH3	B-1	Thermal Sensor
M0	A-2	Drum Motor
M1	A-2	Main Motor
M2	A-2	Pickup Motor
M5	B-1	Scanner Motor
FM4	B-2	Stream Reading Fan
FM9	B-2	Inverter Cooling fan
FM16	B-3	System Fan
FM20	B-2	Scanner Motor Cooling Fan
FL1	B-1	Scanning Lamp
H1	A-1	Fixing Main Heater
H2	A-1	Fixing Sub Heater
H3	A-1	Drum Heater
H4	A-1	Cassette Heater
H5	B-1	Scanning Lamp Heater
SW1	A-1	Main Switch
SW2	A-2	Front cover Switch
SW3	A-1	Environment Switch
TP1	A-1	Fixing Heater Thermal Switch

	MAP	NAME
PCB1	B-2	CCD/AP PCB
PCB2	B-2	Reader Controller PCB
PCB3	A-3,C-3	Pixel/Line Conversion PCB
PCB4	B-3	Differential PCB
PCB5	B-3,C-3,D-1	Main Controller PCB
PCB6	A-2,D-3,	DC Controller PCB
PCB7	C-3,	Laser Driver PCB 1
PCB8	D-3,	Laser Driver PCB 2
PCB9	B-1	Scanner Motor Driver PCB
PCB10	A-3	DC Power Supply PCB
PCB11	E-2	HVT-DC1 PCB
PCB12	E-3	HVT-AC PCB
PCB13	A-3	All Night PCB
PCB14	A-2,C-2,D-3	Relay PCB
PCB15	B-3	Bi-Centronics PCB
PCB16	B-1	Fluorescent Inverter PCB
PCB17	A-1	Drum Heater Control PCB
PCB18	D-3	BD PCB
PCB19	C-1	Potential Control PCB
PCB20	A-1,C-2	AC Driver PCB
PCB21	A-1,C-2	
PCB22	D-2	Environment Sensor PCB
PCB23	D-1	No-Stacking PCB
PCB24	D-2	Cassette 3 Paper Level Detection PCB
PCB25	D-2	Cassette 4 Paper Level Detection PCB
PCB26	C-1	Laser Scanner Motor Driver PCB
PCB27	B-1	Intensity Control PCB
PCB28	B-1	Intensity Sensor PCB
PCB29	B-1	Original Orientation Detection PCB
		Control Panel CPU PCB
		Color LCD and Touch Panel
		Key A PCB
		Key B PCB
		Key C PCB
		Two Inverter PCB

(1/3)

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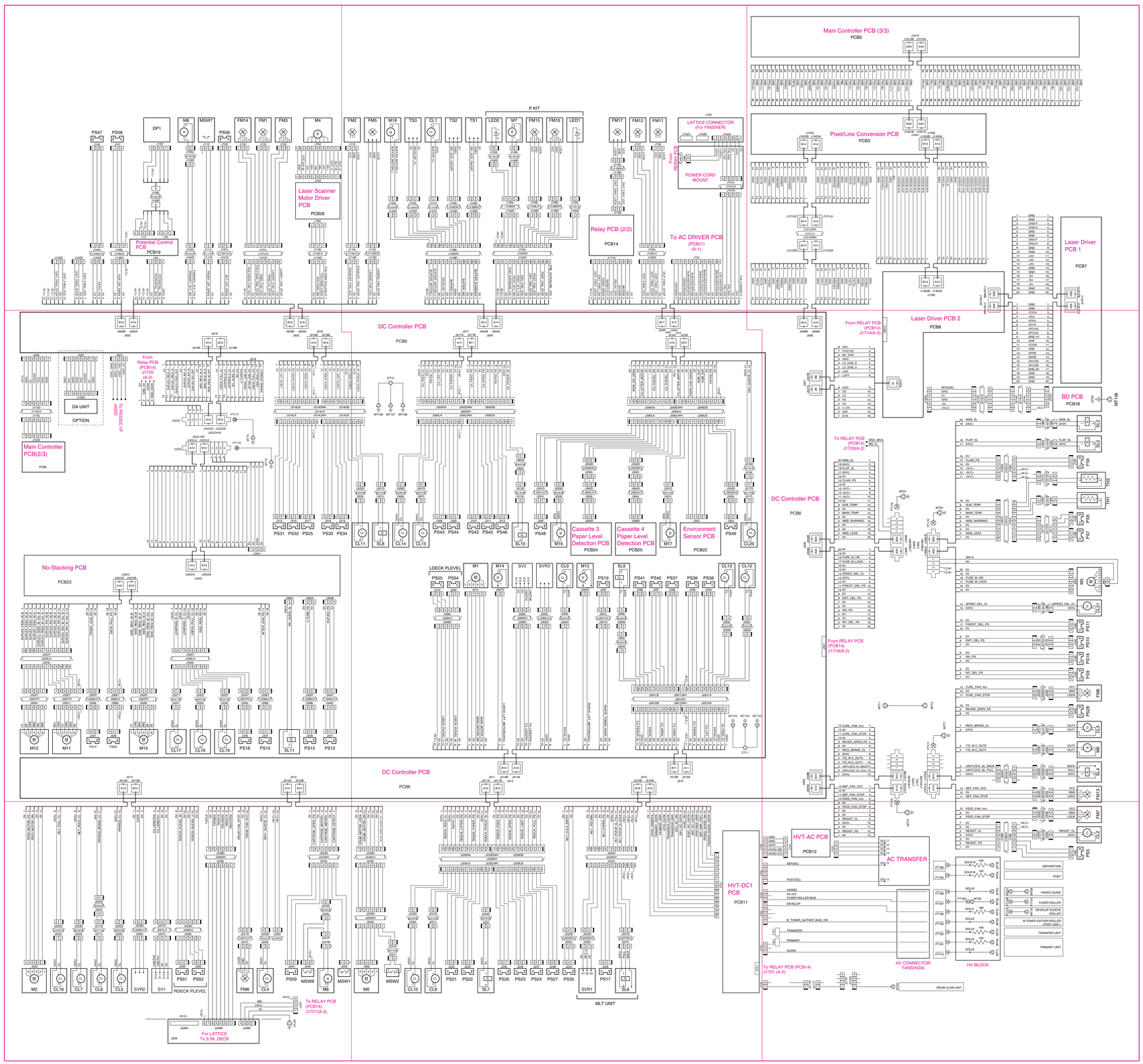

	MAP	NAME
PS5	E-3	Registration Paper Sensor
PS6	D-3	Fixing Claw Jam Sensor
PS7	D-3	Fixing Cleaning Belt Sensor
PS8	D-3	Fixing Cleaning Belt warning Sensor
PS9	D-3	Internal Delivery Paper Sensor
PS10	D-3	External Delivery Paper Sensor
PS11	D-3	Fixing Feeding Unit Outlet Paper Sensor
PS12	D-1	Duplexing Reversal Paper Sensor
PS13	D-1	U-turn Paper Sensor
PS14	D-1	Pre-Confluence Paper Sensor
PS15	D-1	Post-Confluence Paper Sensor
PS16	D-3	Reversal Paper detection Sensor
PS17	E-2	Manual Feed Tray Paper Detection Sensor
PS18	D-1	Horizontal Registration Paper Sensor
PS19	D-2	Waste Toner Case Full Sensor
PS20	E-2	Front Deck (Right) Pickup Paper Sensor
PS21	E-2	Front Deck (Right) Lifter Position Sensor
PS22	E-2	Front Deck (Right) Paper Sensor
PS23	E-2	Front Deck (Right) Open/Closed Sensor
PS24	E-2	Front Deck (Right) Lifter Upper Limit Sensor
PS25	D-1	Front Deck (Left) Pickup Paper Sensor
PS26	D-1	Front Deck (Left) Feeding Paper Sensor
PS27	E-2	Front Deck (Right) Feeding Paper Sensor
PS28	D-3	Fixing/feeding Unit Releasing lever Sensor
PS31	D-1	Front Deck (Left) Lifter Position Sensor
PS32	D-1	Front Deck (Left) Paper Sensor
PS33	D-1	Front Deck (Left) Open/Closed Sensor
PS34	D-1	Front Deck (Left) Lifter Upper Limit Sensor
PS35	E-2	Manual Feed Tray De-Curling Inlet Paper Sensor
PS37	D-2	Cassette 3 Pickup Paper Sensor
PS38	D-2	Cassette 3 Lifter Position Sensor
PS39	D-2	Cassette 3 Paper Sensor
PS40	D-2	Cassette 3 Open/Closed Sensor
PS41	D-2	Vertical Path 3 Roller Paper Sensor
PS42	D-2	Cassette 4 Pickup Paper Sensor
PS43	D-2	Cassette 4 Lifter Position Sensor
PS44	D-2	Cassette 4 Paper Sensor
PS45	D-2	Cassette 4 Open/Closed Sensor
PS46	D-2	Vertical Path 4 Roll Paper Sensor
PS47	C-1	Vertical Path Roller 1 Paper Sensor
PS48	D-2	Lower Right Cover Open/Closed Sensor
PS49	D-2	Vertical Path 2 Roller Paper Sensor
PS51	E-1	Front Deck (Right) Medium Level Paper Sensor
PS52	E-1	Front Deck (Right) Upper Level Paper Sensor
PS54	D-2	Front deck (Left) Medium Level Paper Sensor
PS55	D-2	Front Deck (Left) Upper Level Paper Sensor
PS56	C-1	Manual Feed Tray Cover Open/Closed Sensor
PS58	C-1	Middle Right Cover Open/Closed Sensor
PS59	E-1	Toner Cartridge Cover Open/Closed Sensor
MSW1	E-1	Cartridge Sensor
MSW2	E-2	Waste Toner Clogging Sensor
MSW7	C-1	Front Cover Open/Closed Sensor
MSW8	E-1	Cartridge Motor Drive
SV1	E-1	Cassette 3 Paper Length Sensor
SV2	D-2	Cassette 4 Paper Length Sensor
SVR1	E-2	Manual Feed Tray Paper Width Sensor
SVR2	E-1	Cassette 3 Paper Width Sensor
SVR3	D-2	Cassette 4 Paper Width Sensor
TS1	C-2	Hopper Inside Toner Level Sensor
TS2	C-2	Hopper Inside Toner Lower Limit Sensor
TS3	C-2	Developing Assembly Inside Toner Level Sensor
TH1	D-3	Fixing Heater Main Thermistor
TH2	D-3	Fixing Heater Sub Thermistor (end part)
DP1	C-1	Drum Surface Potential Measurement
CL1	C-2	Hopper Clutch
CL2	E-3	Registration Roller Clutch
CL3	D-3	Registration Roller Brake Clutch
CL4	E-1	Developing Cylinder Clutch
CL5	E-1	Pre-Registration Roller Clutch
CL6	E-1	Pre-Registration Roller Brake Clutch
CL7	E-1	Manual Feed Tray Pickup Roller Clutch
CL8	E-2	Vertical Path 1 Roller Clutch
CL9	D-2	Vertical Path 2 Roller Clutch
CL10	E-2	Front Deck (Right) Pickup Roller Clutch
CL11	D-2	Front Deck (Left) Pickup Roller Clutch
CL12	D-2	Cassette 3 Pickup Roller Clutch
CL13	D-2	Vertical Path 3 Roller Clutch
CL14	D-2	Cassette 4 Pickup Roller Clutch
CL15	D-2	Vertical Path 4 Roller Clutch
CL16	D-1	Lower Feeding Middle Roller Clutch
CL17	D-1	Lower Feeding Right Roller Clutch
CL18	E-1	Manual Feed Tray Feeding Roller Clutch
CL19	D-1	Front Deck (Left) Feeding Roller clutch
CL20	D-2	Developing Cylinder Deceleration Clutch
CL21	D-3	Switches Delivery Speed Clutch
SL2	D-3	Fixing Cleaning Belt Solenoid
SL3	D-3	Delivery Flapper Solenoid
SL4	D-3	Locks the Fixing/Feeding Unit Solenoid
SL6	E-2	Manual Feed Tray Pickup Latch Solenoid
SL7	E-2	Front Deck (Right) Pickup Mechanism Solenoid
SL8	D-2	Front Deck (Left) Pickup Mechanism Solenoid
SL9	D-2	Cassette 3 Pickup Mechanism Solenoid
SL10	D-2	Cassette 4 Pickup Mechanism Solenoid
SL11	D-1	Reversing Flapper Solenoid
M0	E-2	Drum Motor
M1	D-2	Main Motor
M2	E-1	Pickup Motor
M3	D-3	Fixing Motor
M4	C-1	Laser Scanner Motor
M6	E-1	Cartridge Motor
M7	C-2	Pre-Transfer Charging Wire Cleaner Motor
M8	C-1	Primary Charging wire Cleaner Motor
M9	D-3	Transfer Separation Charging Wire Cleaner Motor
M11	D-1	Reversal Motor
M12	D-1	Duplexing Feeding Motor
M13	D-2	Front Deck (Right) Lifter Motor
M14	D-2	Front Deck (Left) Lifter Motor
M15	D-1	Horizontal Registration Motor
M16	D-2	Cassette 3 Lifter Motor
M17	D-2	Cassette 4 Lifter Motor
M18	C-2	Hopper Inside Toner Feeder Motor
FM1	C-1	Primary Charging Fan
FM2	C-2	Fixing Heat Discharge Fan
FM3	C-1	Scanner Cooling Fan
FM5	C-2	Laser Driver Cooling Fan
FM6	D-3	Curl Removing Fan
FM7	E-3	Feeding Fan
FM8	E-1	Drum Fan
FM10	C-2	Pre-transfer charging Assembly Fan
FM11	C-2	Power Supply Cooling Fan 1
FM12	C-2	Power Supply Cooling Fan 2
FM13	D-3	Separation Fan
FM14	C-1	Laser Scanner Motor Cooling Fan
FM15	C-2	Development Fan
FM17	C-2	Delivery Adhesion-Proofing Fan
LED1	C-2	Pre-Exposure Lamp
LED2	C-2	Pre-Transfer Exposure Lamp

(2/3)

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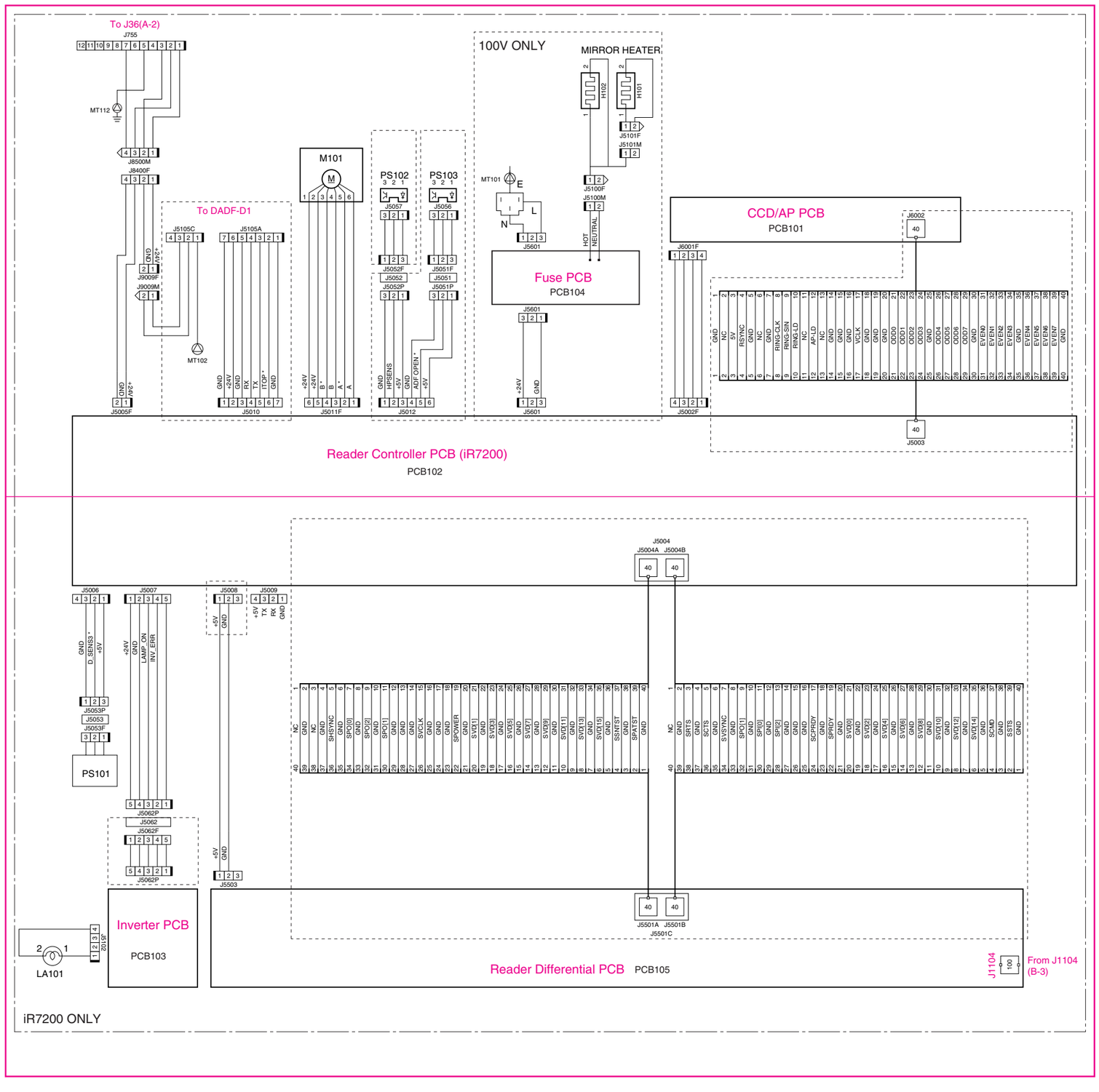
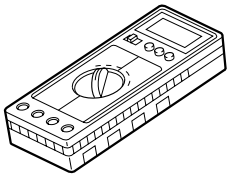
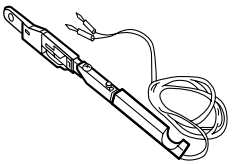
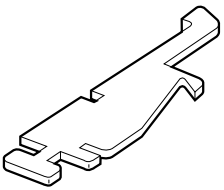
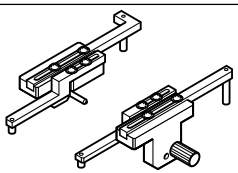
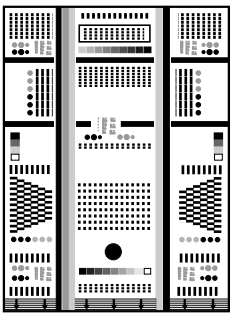


	MAP	NAME
PS101	G-1	Original Size Sensor 3
PS102	F-1	Scanner Home Position Sensor
PS103	F-1	ADF Open/Closed Sensor
M101	F-1	Scanner Motor
LA101	G-1	Scanning Lamp(Xenon Tube)
PCB101	F-1	CCD/AP PCB
PCB102	F-1,G-1	Reader Controller PCB
PCB103	G-1	Inverter PCB
PCB104	F-1	Fuse PCB
PCB105	G-1	Reader Differential PCB

(3/3)

4 Special Tools Table

You will need the following tools in addition to the standard tools set to service the copier.

No.	Tool name	Tool No.	Shape	Rank*	Remarks
1	Digital multimeter	FY9-2002		A	For adjusting the laser intensity together with the laser power checker (for electrical checks).
2	Laser power checker	FY9-4008		B	For adjusting the light intensity together with the digital multimeter.
3	Door switch	TKN-0093		A	
4	Mirror positioning tool (front, rear)	FY9-3040		B	For adjusting the distance between No. 1 and No. 2 mirrors.
5	NA-3 test sheet	FY9-9196		A	For adjusting images and making checks.

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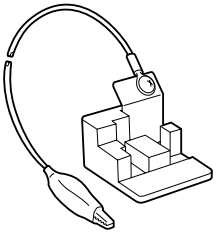
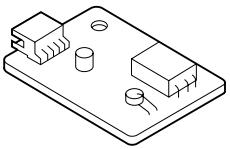
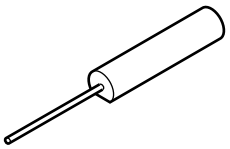
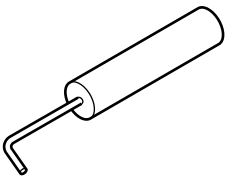
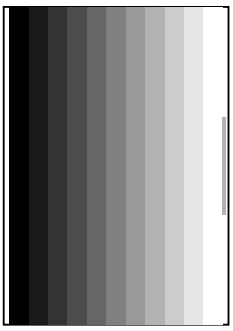
No.	Tool name	Tool No.	Shape	Rank*	Remarks
6	Potential sensor tester electrode	FY9-3041		B	For checking the zero level of the surface potential sensor.
7	Environment sensor meter sensor	FY9-3014		B	For checking the environment sensor.
8	Tester extension pin	FY9-3038		A	For making electrical checks (attachment to the meter).
9	Tester extension Pin (L-tipped)	FY9-3039		A	For making electrical checks (attachment to the meter).
10	D-10 Test Sheet	FY9-9129		B	For adjusting images.

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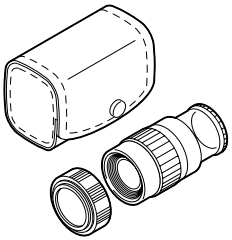
No.	Tool name	Tool No.	Shape	Rank*	Remarks
11	Loupe	CK-0056		B	For checking images.

*Rank:
A: Each service person is expected to carry one.
B: Each five or so service persons is expected to carry one.
C: Each workshop is expected to carry one.

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5 Solvents/Oils

No.	Name	Uses	Composition	Remarks
1	Alcohol	Cleaning; e.g., glass, plastic, rubber (external covers)	Hydrocarbon of the fluorine family, alcohol, surface activating agent, water	• Do not bring near fire. • Procure locally. • IPA (isopropyl alcohol)
2	Solvent	Cleaning; e.g., metal areas; removing oil or toner.	Hydrocarbon of fluorine family, hydrocarbon of chlorine family, alcohol	• Do not bring near fire. • Procure locally.
3	Heat-resisting grease	Lubricating; e.g., fixing drive parts.	Lithium soap of mineral family, molybdenum disulfide	• CK-0427 (500 g/can)
4	Lubricant		Mineral oil (paraffin family)	• CK-0524 (100 cc)
5	Lubricant	Lubricating; e.g., friction parts.	Silicone oil	• CK-0551 (20 g)
6	Drum cleaning powder	Cleaning; e/g., photosensitive drum.	Selenium oxide	• CK-0429
7	Lubricant	Lubricating; e.g., scanner rail.	Silicone oil	• FY9-6011 (50 cc)
8	Conducting grease	Drum heater contact	Fluorine poly ethyl, Poly tetra fluorine ethylene	• FY9-6008 (10 g)

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Service Mode

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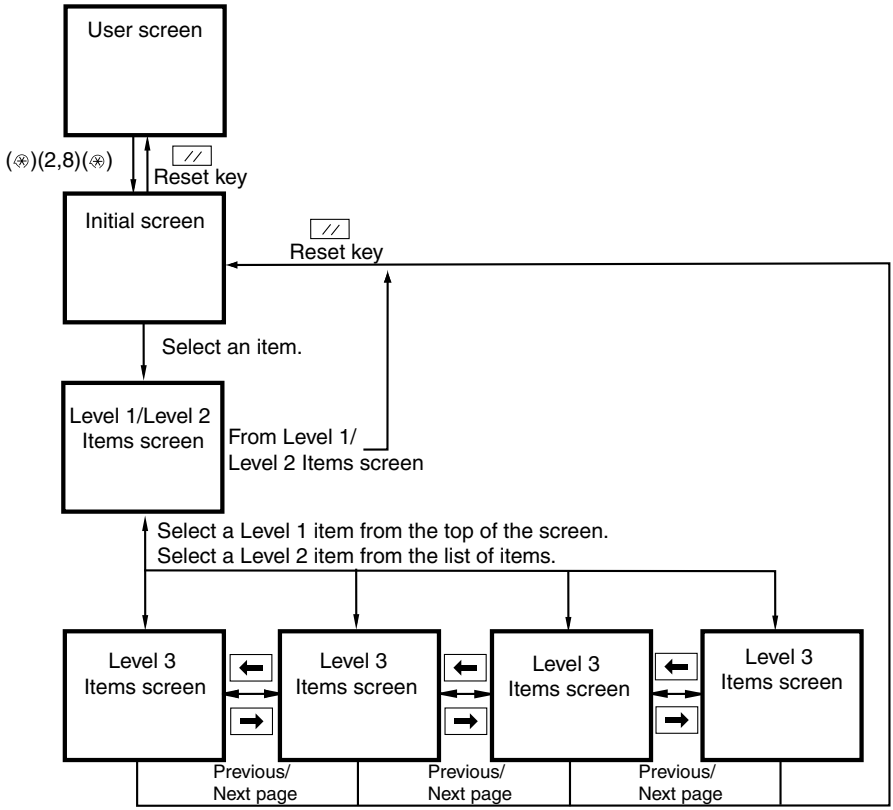
1 Construction of Service Mode

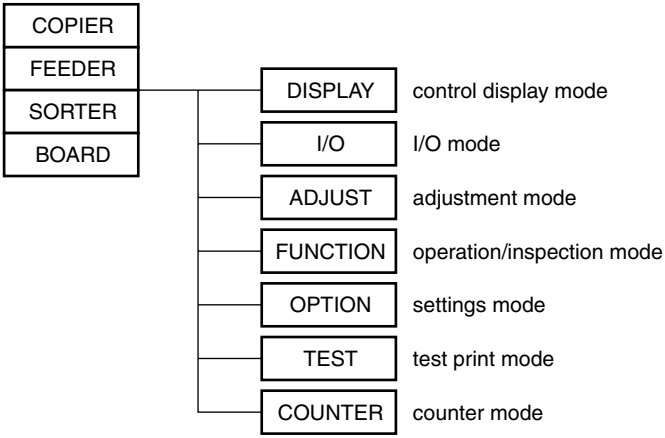
1.1 Outline

The service mode screens are grouped into three levels as follows: Initial screen, Level 1/ Level 2 Items screen, and Level 3 Items screen.



F00-101-01

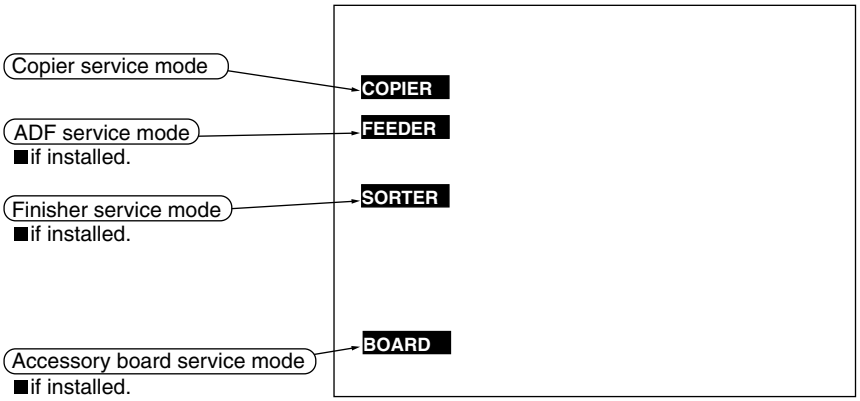
The machine's service mode is classified into the following seven types:



F00-101-02

1.2 Starting Service Mode and Making Selections

1) Press the User Mode key "✱" in the control panel.
2) Press '2' and '8' at the same time.
3) Press the User Mode key "✱" in the control panel.



F00-102-01

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1.3 Ending Service Mode

- Press the Reset key once to return to Service Mode Initial screen (F00-102-01).
- Press the Reset key twice to end service mode and return the User screen (standard screen).

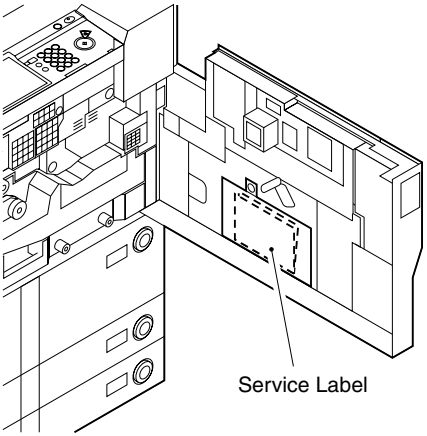
If you have used service mode (ADJUST, FUNCTION, OPTION), be sure to turn off and then on the main power switch after ending service mode.

1.4 Backing Up Service Mode

At time of shipment from the factory, each machine is adjusted, and the adjustment values are recorded on the Service Label (attached to the cover of the Service Book case behind the front cover).

If you have replaced the reader controller PCB, DC controller PCB (or if you have cleared the RAM of these), the ADJUST and OPTION settings will be replaced by default settings. If you have made adjustments in the field and changed service mode settings, be sure to print out the Service Label and store it away (COPIER>FUNCTION>MISC-P>LBL-PRINT). If the label lacks items, use its margin.

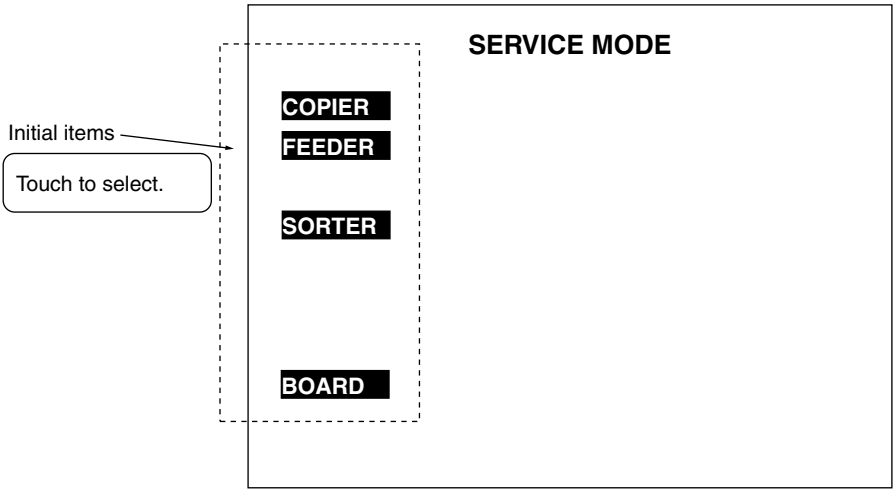
You can also print out a complete list of service mode settings: COPIER>ADJUST/OPTION/COUNTER; COPIER>FUNCTION>MISC-P>P-PRINT.



F00-104-01

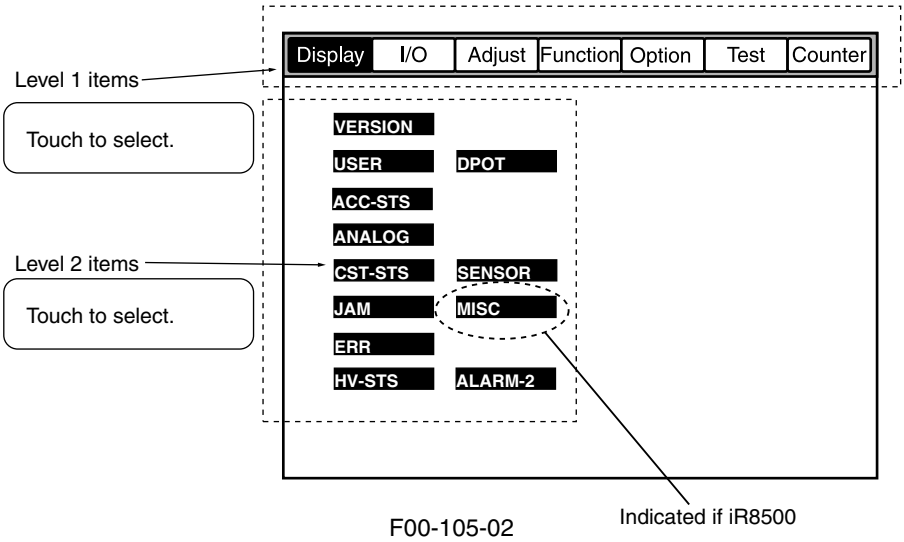
1.5 Basic Operation

1.5.1 Initial Screen



F00-105-01

1.5.2 Level 1/Level 2 Items Screen



F00-105-02

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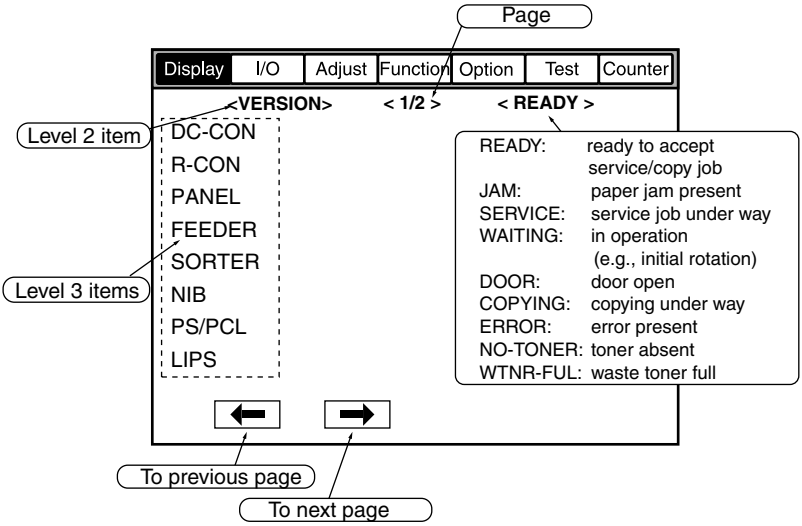
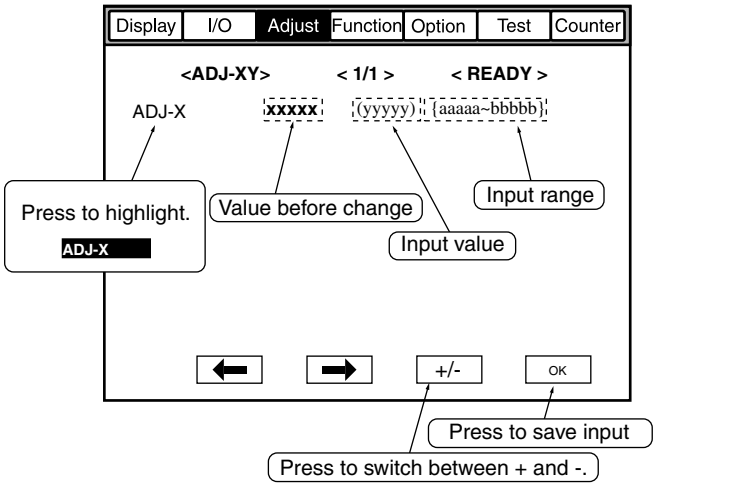
1.5.3 Level 3 Items Screen



F00-105-03



Stop key: press to stop each operation.

Clear key: press to clear a value.

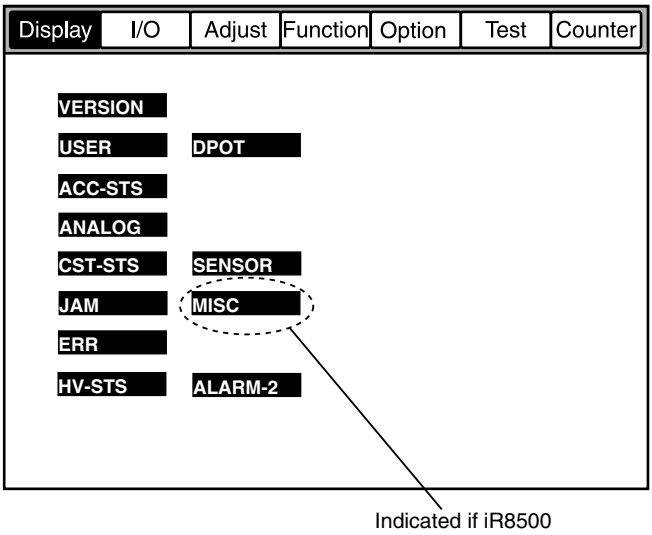
Start key: press to make copies without ending service mode.

F00-105-04

2 COPIER

2.1 DISPLAY

The following appears in response COPIER>DISPLAY:



F00-201-01

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<VERSION>

Indicates the ROM versions of the PCBs used in the machine and accessories.
Indication <xx,yy> xx: version number yy: R&D control number

DC-CON	Indicates the ROM version of the DC controller PCB.
R-CON	Indicates the ROM version of the reader controller PCB.
PANEL	Indicates the ROM version of the control panel CPU PCB.
FEEDER	Indicates the ROM version of the ADF controller.
SORTER	Indicates the ROM version of the finisher controller PCB.
NIB	Indicates the version of the network interface board.
PS/PCL	Indicates the version of the software (PS/PCL).
LIPS	Indicates the version of the printer board (LIPS).
SDL-STCH	Indicates the ROM version of the saddle stitcher controller PCB.
MN-CONT	Indicates the version of the software of the main controller PCB.
RIP1	Not used.
BOOT-ROM	Indicates the BOOT ROM version of the main controller assembly.
DIAG-DVC	Indicates the version f the self diagnostic device.
RUI	Indicates the version of the RUI.

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COPIER>DISPLAY

LANG-EN	Indicates the version of the English language module.
LANG-FR	Indicates the version of the French language module.
LANG-DE	Indicates the version of the German language module.
LANG-IT	Indicates the version of the Italian language module.
LANG-JP	Indicates the version of the Japanese language module.
LANG-CS	Indicates the version of the Czech language module.
LANG-DA	Indicates the version of the Danish language module.
LANG-EL	Indicates the version of the Greek language module.
LANG-ES	Indicates the version of the Spanish language module.
LANG-ET	Indicates the version of the Estonian language module.
LANG-FI	Indicates the version of the Finnish language module.
LANG-HU	Indicates the version of the Hungarian language module.
LANG-KO	Indicates the version of the Korean language module.
LANG-NL	Indicates the version of the Dutch language module.
LANG-NO	Indicates the version of the Norwegian language module.
LANG-PL	Indicates the version of the Polish language module.
LANG-PT	Indicates the version of the Portuguese language module.

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LANG-RU	Indicates the version of the Russian language module.
LANG-SL	Indicates the version of the Slovak language module.
LANG-SV	Indicates the version of the Swedish language module.
LANG-TW	Indicates the version of the Chinese language module (traditional).
LANG-ZH	Indicates the version of the Chinese language module (simplified).

<USER>

Indicates items related to the User screen and the user.

LANGUAGE	Indicates the language/paper size configuration used. Display <LANGUAGE xxyy.zz.aa> xx (higher 2 digits): country code yy (lower 2 digits): language code zz: destination code (00: Canon, 1: OEM) aa: paper size configuration code (00: AB, 01: Inch, 02: A, 03: all sizes)
COUNTER	Indicates the type of count control of the soft counter (00: 100V, 01: 208/230V).
MODEL	Indicates the type of machine (0: iR7200 1: iR8500).

COPIER>DISPLAY
<ACC-STS>

Indicates the connection of an accessory.

FEEDER	Indicates the connection of an ADF (0: no, 1; yes).
SORTER	Indicates the connection of a finisher and a puncher unit. XY X = 0: no finisher, 1: finisher, 2: saddle finisher, 3: saddle finisher inserter, 4: saddle finisher + paper folding unit, 5: saddle finisher + inserter + paper folding unit; Y = 0: no puncher unit, 1: 2-hole, 2: 2/3-hole, 3: 4-hole (FRN), 4: 4-hole (SWDN)
DECK	Indicates the connection of a paper deck (accessory) (0: no, 1: yes).
CARD	Indicates the presence/absence of a card reader (if no card reader is installed, '1' is indicated) (0: no, 1: yes).
DATA-CON	Indicates the connection of a self diagnostic device (0: no, 1: copy data controller, 2: NE controller).
RAM	Indicates the memory size of the main controller (192 MB).
NIB	Indicates the connection of a network interface board. (0: no, 1: Ether board, 2: Token Ring, 3: both)
LIPS-RAM	Indicates the memory size of the LIPS board (xx MB).
LIPS	Indicates the connection of a LIPS board (0: no, 1: yes).
PS/PCL	Indicates the connection of the PS/PCL (0: no, 1: PS/PCL, 2: PS kanji).
RIP1	Not used.

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NETWARE	Indicates the installation of NetWare firmware (0: no, 1: installed).

<ANALOG>

Indicates the measurements taken by analog sensors.

TEMP	Indicates the machine inside temperature (environment sensor; °C).
HUM	Indicates the machine inside humidity (environment sensor; %).
ABS-HUM	Indicates the machine absolute humidity (absolute moisture content; g).
OPTICS (iR8500)	Indicates the temperature of the lamp (°C).
FIX-C	Indicates the temperature of the middle of the fixing upper roller (°C).
FIX-E	Indicates the temperature of the ends of the fixing upper roller (°C).

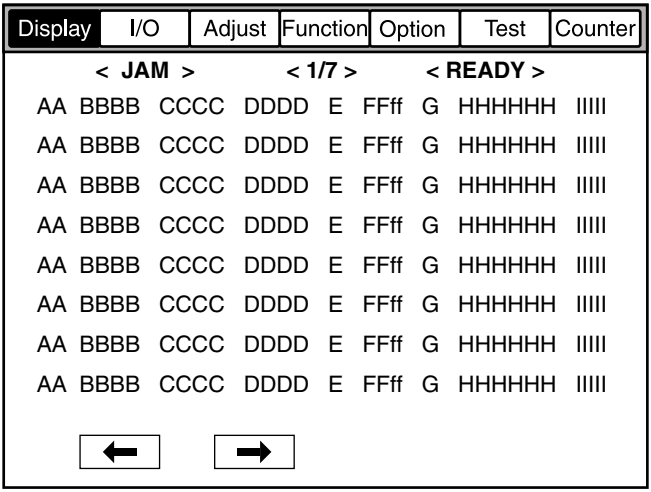
<CST-STS>

Indicates the paper size of the cassette and the manual feeder.

WIDTH-C3	Indicates the width of paper in cassette 3 in terms of paper size.
WIDTH-C4	Indicates the width of paper in cassette 4 in terms of paper size.
WIDTH-MF	Indicates the width of paper in the manual feed tray.

COPIER>DISPLAY
<JAM>

Indicating Jam Data



F00-201-02

Item	Description	Remarks
AA	Indicates the sequence of jams (higher the number, older the jam).	1 to 50 (50 max.)
BBBB	Indicates the month and day of occurrence.	mm/dd (2 characters each)
CCCC	Indicates the time of occurrence.	24-hour notation
DDDD	Indicates the time of recovery.	24-hour notation (with recovery off, FFFF)
E	Indicates the location.	0: copier 1: feeder 2: finisher
FFff	Indicates the applicable jam code.	FF: type of jam in copier (See T00-201-01) ff: jam sensor in copier (See T00-201-02) FF: type of jam in finisher (See T00-201-03) ff: finisher jam sensor (See T00-201-04) FFff: ADF jam code (See from T00-201-05 to 07)
G	Indicates the source of paper.	
HHHHHH	Indicates the soft counter of the source of paper.	
IIIII	Indicates the size of paper.	

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FF: Types of Jams in the Copier

Code	Type
01xx	delay jam
02xx	stationary jam
0Axx	power-on residual jam
0Bxx	front cover open jam

T00-201-01

ff: Jam Sensors in the Copier

Code	Sensor
xx00	no applicable sensor
xx01	right deck pickup sensor
xx02	left deck pickup sensor
xx03	cassette 3 pickup sensor
xx04	cassette 4 pickup sensor
xx05	vertical path 1 sensor
xx06	vertical path 2 sensor
xx07	vertical path 3 sensor
xx08	vertical path 4 sensor
xx09	pre-registration sensor
xx0A	claws jam sensor
xx0B	inside delivery sensor
xx0C	outside delivery sensor
xx0D	fixing/feeding outlet sensor
xx0E	reversal sensor
xx0F	duplex reversal sensor
xx10	U-turn sensor
xx11	pre-confluence sensor
xx12	post-confluence sensor
xx13	left deck feed sensor
xx14	right deck feed sensor
xx15	side paper deck feed sensor
xx16	manual feed sensor
xx17	side paper deck pickup sensor

T00-201-02

FF: Types of Jams in the Finisher

Code	Type
10xx	delay jam
11xx	stationary jam
13xx	power-on residual jam
14xx	front cover open jam
15xx	staple jam
16xx	punch jam
17xx	other jam

T00-201-03

ff: Jam Sensors in the Finisher

Code	Sensor
xx00	no applicable sensor
xx11	fold path residual sensor 1 delay jam
xx12	fold path residual sensor 2 delay jam
xx13	fold path residual sensor 3 delay jam
xx14	fold path residual sensor 4 delay jam
xx15	saddle inlet sensor delay jam
xx16	inlet path paper sensor delay jam
xx17	buffer rear paper sensor delay jam
xx18	non-sort delivery sensor delay jam
xx1A	inserter separation sensor 1/2 delay jam
xx1B	inserter feed sensor 3 delay jam
xx21	feed path paper sensor 1 stationary jam
xx22	feed path paper sensor 2 stationary jam
xx23	feed path paper sensor 3 stationary jam
xx24	feed path paper sensor 4 stationary jam
xx25	saddle inlet sensor stationary jam
xx26	inlet path paper sensor stationary jam
xx27	buffer path rear paper sensor stationary jam
xx28	non-sort delivery sensor stationary jam
xx29	sort delivery sensor stationary jam
xx2A	inserter separation sensor 1/2 stationary jam
xx2B	inserter feed path paper sensor 3 stationary jam
xx2C	knurled belt HP sensor/stack delivery sensor stationary jam
xx31	inserter paper set sensor pickup paper absent jam

T00-201-04 (1/2)

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COPIER>DISPLAY

Code	Sensor
xx32	shutter jam
xx33	inserter separation sensor 1/2 skew jam
xx86	stitcher home position front/rear staple jam
xx87	No. 1 paper sensor/delivery sensor stationary jam
xx88	outlet cover sensor/inlet cover sensor open jam (paper present)
xx89	outlet cover sensor/inlet cover sensor open jam (paper absent)
xx91	No. 1 paper sensor delay jam
xx92	delivery sensor/vertical path paper sensor delay jam
xxA1	No. 1/2/3 paper sensor stationary jam
xxA2	delivery sensor/vertical path paper sensor stationary jam

T00-201-04 (2/2)

FFff: Jam Sensors in the ADF (iR8500)

Code	Sensor
0011	pickup trailing edge skew
0012	pickup fault 1
0013	pickup fault 2
0014	reversal delay
0015	reversal pickup trailing edge skew
0016	reversal pickup fault 1
0019	residual original
001A	1st sheet pickup trailing edge skew
001B	1s sheet reversal pickup trailing edge skew
001C	1st sheet pickup fault 1
001D	1st sheet pickup fault 2
001E	1st sheet reversal delay
001F	1st the reversal pickup fault 1
0022	separation delay
0023	pickup delay
0024	pre-leading edge skew
0025	pre-reversal delay 1
0026	pre-reversal delay 2
0027	pre-reversal delay 3
002A	1st sheet pickup leading edge skew

T00-201-05 (1/3)

Code	Sensor
002B	1st sheet pre-reversal delay 1
002C	1st sheet pre-reversal delay 2
002D	1st sheet pre-reversal delay 3
0031	pickup stationary 1
0032	pre-stationary 2
0033	pre-reversal stationary 1
0034	pre-reversal stationary 2
0035	pre-reversal stationary 3
0036	pre-reversal stationary 4
003A	1st sheet pickup stationary 1
003B	1st sheet pickup stationary 2
003C	1st sheet pre-reversal stationary 1
003D	1st sheet pre-reversal stationary 2
003E	1st sheet pre-reversal stationary 3
003F	1st sheet pre-reversal stationary 4
0041	reversal stationary
004A	1st sheet reversal stationary
0052	reversal pickup delay
0054	reversal pickup stationary
0055	pre-reversal pickup delay
0056	pre-reversal pickup stationary 1
0057	pre-reversal pickup stationary 2
005A	1st sheet reversal pickup delay
005B	1st sheet reversal pickup stationary
005C	1st sheet pre-reversal pickup delay
005D	1st sheet pre-reversal pickup stationary 1
005E	1st sheet pre-reversal pickup stationary 2
0081	delivery delay
0082	delivery stationary 1
0083	delivery stationary 2
008A	1st sheet delivery delay
008B	1st sheet delivery stationary 1
008C	1st sheet delivery stationary 2
0092	manual feed registration delay
00A1	manual feed registration stationary
00A2	manual feed reversal stationary
00A3	manual feed delivery delay
00A4	manual feed delivery stationary
00A5	manual feed residual original

T00-201-05 (2/3)

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Code	Sensor
00A6	manual feed original size error
00E1	ADF open
00E2	cover open
00E3	cycle NG
00E4	initial residual
00E5	timing error
00E6	original size error
00E7	user ADF open
00E8	user cover open
00E9	power-down
00EA	image leading edge error
00EB	1st sheet image leading edge error
00F1	belt speed setting error
00F2	belt speed switch error
00F3	belt status error
00F4	image leading edge output timing error
00F8	reversal speed setting error
00F9	reversal speed switch error
00FA	reversal status error
00FD	last sheet error
00FE	error
00FF	program

T00-201-05 (3/3)

FFff: Sensors for and Types of Jams in the Feeder (iR7200)

x=1: 1st original picked up.

x=0: 2nd or subsequent original picked up.

Code	Description	Sensor
00x1	Post-separation sensor (S3) delay	S3
00x2	Post-separation sensor (S3) stationary	S2, S3
00x3	Registration senor (PI1) delay	S3, PI1
00x4	Registration sensor (PI1) stationary	PI1
00x5	Read sensor (S2) delay	S2
00x6	Read sensor (S2) stationary	S2
00x7	Delivery reversal sensor (S1) delay	S1, S2
00x8	Delivery reversal sensor (S1) stationary	S1, S2
00x9	User ADF open	PI2
00xA	ADF open	PI2
00xB	User cover open	SW2
00xC	Cover open	SW2
00xD	Residual	PI1, S1, S2, S3
00xE	Pickup fault	PI5
00xF	Timing error	S2

T00-201-06

G: Source of Paper

Code	Type
1	right deck
2	left deck
3	cassette 3
4	cassette 4
5	Not used.
6	Not used.
7	side paper deck
8	manual feed tray
9	duplex assembly

T00-201-07

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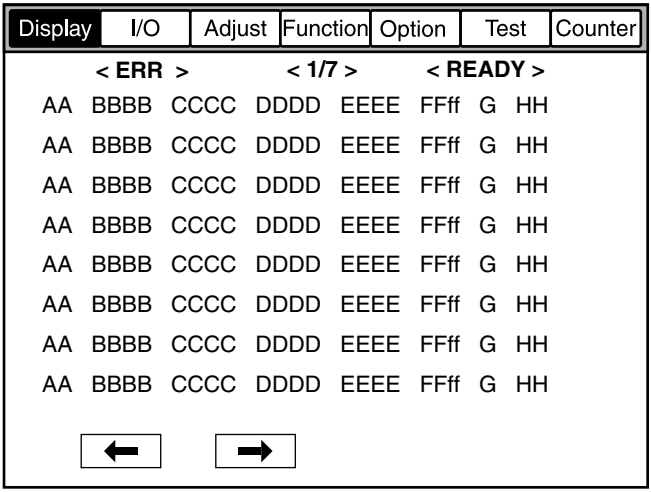
<ERR>

Indicating Error Data



F00-201-03

Item	Description	Remarks
AA	Indicates the sequence of errors (higher the number, older the error).	1 to 50 (50 max.)
BBBB	Indicates the month and day of occurrence.	mm/dd (2 characters each)
CCCC	Indicates the time of occurrence.	24-hour notation
DDDD	Indicates time of recovery.	24-hour notation (with recovery off, FFFF)
EEEE	Indicates the applicable error code.	See “Error Codes.”
FFff	Indicates the applicable detail code.	if none, ‘0000’
G	Indicates the location of occurrence.	0: copier/main controller 1: feeder 2: finisher 3: C.F.F. 4: reader 5: printer 6: PDL
HH	Not used	

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<HV-STS>

Indicates the measurements taken of voltage/current.

PRIMARY	Indicates the level of current of primary charging (μA).
PRI-GRID	Indicates the grid voltage of primary charging (V).
PRE-TR	Indicates the level of current of pre-transfer charging (μA).
TR	Indicates the level of current of transfer charging (μA).
SP	Indicates the level of current of separation charging (μA).
BIAS	Indicates the level of developing bias DC (V).

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<DPOT>

Indicates the photosensitive drum surface potential control data.

DPOT-K	Indicates the surface potential of the photosensitive drum (V).
VL1T	Indicates the target value of the light area potential (VL1) for the copier (V).
VL1M	Indicates the measurement taken of the light area potential (VL1) for the copier (V) (optimum reference: VL1T ±6 V).
VDT	Indicates the target value of the dark area potential (VD) for the copier (V).
VDM	Indicates the measurement taken of the dark area potential (VD) for the copier (V) (optimum reference: VDT ±6 V).
VDM-P	Indicates the measurement taken of the dark era potential (VD) for printer (PDL) images (V) (optimum reference: VDT-P ±6 V).
VDT-P	Indicates the target value of the dark area potential (VD for printer (PDL) images (V).

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<SENSOR>

Indicates the state of sensors.

DOC-SZ	Indicates the size of an original detected by the original size sensor.

<SENSOR> (Indicated if iR8500)

Indicates the state of sensors.

DOC-SZ1	Indicates the output detected by the original size sensor 1.
DOC-SZ2	Indicates the output detected by the original size sensor 2.
DOC-SZ3	Indicates the output detected by the original size sensor 3.
DOC-SZ4	Indicates the output detected by the original size sensor 4.

<MISC> (Indicated if iR8500)

Indicates other states.

FL-LIFE	Indicates the duty ratio when the scanning lamp is ON (%).
STM-P-L	Indicates the lamp stop position for stream reading (large size) (0 to 6).
STM-P-S	Indicates the lamp stop position for stream reading (small size) (0 to 6).
SCAN-LMP	Indicates the number of times the scanning lamp has gone ON.

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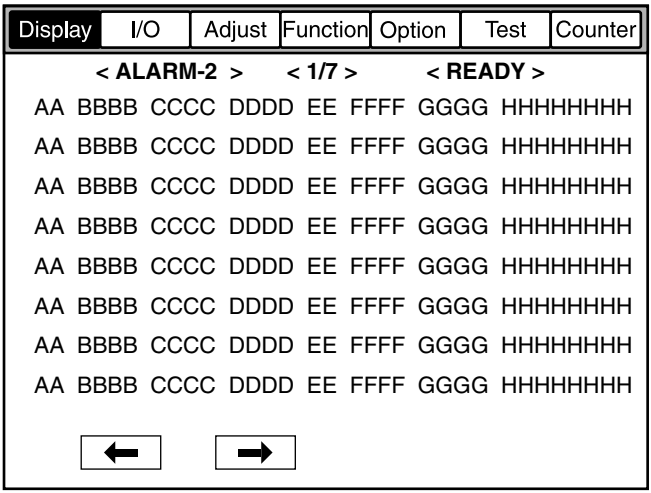
<ALARM-2>

Indicating Alarm Data



F00-201-04

Item	Description	Remarks
AA	Indicates the sequence of alarms (higher the number, older the alarm).	1 to 50 (50 max.)
BBBB	Indicates the month and day of occurrence.	mm/dd (2 characters each)
CCCC	Indicates the time of occurrence.	24-hour notation
DDDD	Indicates the time of recovery.	24-hour notation (with recovery off, FFFF)
EE	Indicates the location of occurrence.	T00-201-07
FFFF	Indicates the applied alarm code.	T00-201-07
GGGG	Indicates the applicable detail code.	
HHHHHHHH	Indicates the reading of the total counter at time of occurrence.	

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List of Alarm Codes

EE	Location of occurrence	FFFF	Alarm code
00	error code indication	0804	system fan alarm (detail code: 0004)
02	reader unit scanner (iR8500)	0003	dust detection small 1
		0004	dust detection small 2
		0005	dust detection small 3
		0006	dust detection small 4
		0007	dust detection small 5
		0008	dust detention small 6
		0009	dust detection small 7
		0010	dust detection large 1
		0011	dust detection large 2
		0012	dust detection large 3
		0013	dust detection large 4
		0014	dust detection large 5
		0015	dust detection large 6
		0016	dust detection large 7
		0017	small position stream read disable
		0018	large position stream read disable
		0019	scanner lamp intensity low
04	pickup/feed	0001	right deck lifter alarm
		0002	left deck lifter alarm
		0003	cassette 3 lifter alarm
		0004	cassette 4 lifer alarm
		0007	manual feed tray lifter alarm
		0008	side paper deck lifter alarm
		0011	right deck re-try alarm
		0012	left deck re-try alarm
		0013	cassette 3 re-try alarm
		0014	cassette 4 re-try alarm
		0017	manual feed tray re-try alarm
		0018	side paper deck re-try alarm
30	high-voltage system	0001	primary charging assembly leakage
		0002	transfer charging assembly leakage
		0003	separation charging assembly leakage
32	potential control	0001	potential control VD alarm
		0002	potential control VL alarm
33	fan	0001	de-curling fan alarm
		0002	feeding fan alarm
		0004	laser driver cooling fan alarm
		0005	scanner motor cooling fan alarm
		0006	developing fan alarm
		0007	delivery adhesion-proofing fan alarm
		0010	stream reading fan alarm

T00-201-07 (1/2)

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COPIER>DISPLAY

EE	Location of occurrence	FFFF	Alarm code
61	stapler mechanism of sorter/finisher	0001	staple absent
62	saddle stitcher mechanism	0001	stitch staple absent
65	puncher mechanism of sorter/finisher	0001	punch waste paper full

T00-201-07 (2/2)

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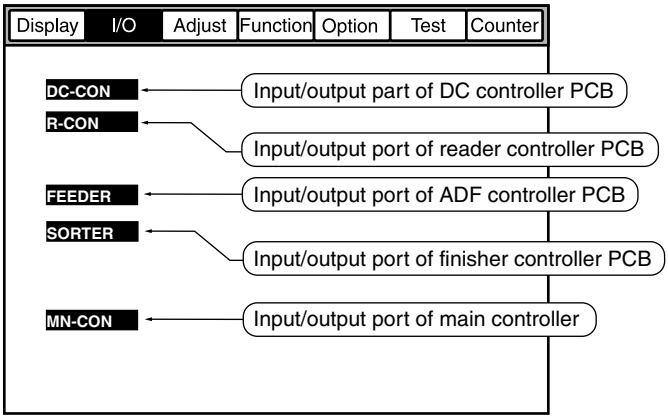
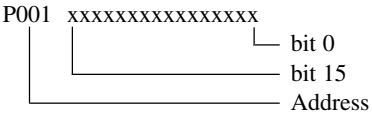
2.2 I/O

The following screen appears in response to COPIER>I/O:



F00-202-01

Guide to the Screen



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COPIER>I/O
<DC-CON>

Indicates the input/output port of the DC controller PCB.

<DC-CON (1/8)>

Address	bit	Description	Notation	Remarks
P001	0	right deck pickup sensor	PS20	1: paper present
	1	left deck pickup sensor	PS25	1: paper present
	2	cassette 3 pickup sensor	PS37	1: paper present
	3	cassette 4 pickup sensor	PS42	1: paper present
	4	vertical path 1 paper sensor	PS47	1: paper present
	5	vertical path 2 paper sensor	PS49	1: paper present
	6	vertical path 3 paper sensor	PS41	1: paper present
	7	vertical path 4 paper sensor	PS46	1: paper present
	8	right deck feed sensor	PS27	1: paper present
	9	left deck feed sensor	PS26	1: paper present
	10	manual feed sensor	PS35	1: paper present
	11	registration paper sensor	PS5	1: paper present
	12	inside delivery sensor	PS9	1: paper present
	13	outside delivery sensor	PS10	1: paper present
	14	fixing feed unit outlet sensor	PS11	1: paper present
	15	fixing claw jam sensor	PS6	1: paper present
P002	0	reversal sensor	PS16	1: paper present
	1	duplex reversal sensor	PS12	1: paper present
	2	U-turn sensor	PS13	1: paper present
	3	pre-confluence sensor	PS14	1: paper present
	4	post-confluence sensor	PS15	1: paper present
	5	not used		
	6	not used		
	7	not used		
	8	DDI		
	9	DDI		
	10	not used		
	11	not used		
	12	not used		
	13	DDI		
	14	DDI		
	15	DDI		
P003	0	hopper inside toner sensor	TS1	0: toner absent
	1	hopper inside toner lower limit sensor	TS2	0: toner absent
	2	developing assembly inside toner sensor	TS3	0: toner absent
	3	fixing web length sensor	PS7	1: web absent
	4	fixing web length warning sensor	PS8	1: web absent warning
	5	cartridge detection	MSW1	0: present

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<DC-CON (2/8)>

Address	bit	Description	Notation	Remarks
	6	waste toner clogging detection	MSW2	0: clogging
	7	waste toner full sensor	PS19	1: toner full
	8	for factory use		
	10	for factory use		
	11	for factory use		
	12	for factory use		
	13	for factory use		
	14	for factory use		
	15	for factory use		
P004	0	right deck lifter sensor	PS21	1: paper present
	1	left deck lifter sensor	PS31	1: paper present
	2	cassette 3 lifter sensor	PS38	1: paper present
	3	cassette 4 lifter sensor	PS43	1: paper present
	4	right deck paper level middle sensor	PS51	1: paper present
	5	right deck paper level high sensor	PS52	1: paper present
	6	left deck paper level middle sensor	PS54	1: paper present
	7	left deck paper level high sensor	PS55	1: paper present
	8	right deck paper sensor	PS22	1: paper present
	9	left deck paper sensor	PS32	1: paper present
	10	cassette 3 paper sensor	PS39	1: paper present
	11	cassette 4 paper sensor	PS44	1: paper present
	12	manual feed tray paper sensor	PS17	1: paper present
	13	fisher connector		0: connected
	14	right deck limit sensor	PS24	1: limit
	15	left deck limit sensor	PS34	1: limit
P005	0	cassette 3 paper length sensor	SV1	
	1	cassette 3 paper length sensor	SV1	
	2	cassette 4 paper length sensor	SV2	
	3	cassette 4 paper length sensor	SV2	
	4	right deck open/closed sensor	PS23	1: closed
	5	left deck open/closed sensor	PS33	1: closed
	6	cassette 3 open/closed sensor	PS40	1: closed
	7	cassette 4 op[en/closed sensor	PS45	1: closed
	8	right upper cover open/closed sensor	PS58	1: closed
	9	right lower cover open/closed sensor	PS48	1: closed
	10	manual feed tray cover open/closed sensor	PS56	1: closed
	11	front cover open/closed detection	MSW7	1: closed
	12	toner cartridge cover open/closed sensor	PS59	1: closed
	13	through path tray in/out detection		0: in
	14	fixing/feeding unit releasing lever sensor	PS28	1: released
	15	BD error detection		1: error

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<DC-CON (3/8)>

Address	bit	Description	Notation	Remarks
P006	0	drum motor lock detection	M0	0: low-speed
	1	laser scanner motor lock detection	M4	0: low-speed
	2	fixing motor lock detection	M3	0: low-speed
	3	primary charging error detection	PCB11	1: error
	4	transfer charging error detection	PCB11	1: error
	5	separation/pre-transfer changing error detection	PCB11	1: error
	6	hopper inside toner feed motor error detection		1: error (E020)
	7	inside cartridge toner feed motor error detection		1: error (E025)
	8	not used		
	9	not used		
	10	not used		
	11	not used		
	12	AC relay shut-off open circuit detection		1: error
	13	not used		
	14	overcurrent notice (24 V)	PCB14	1: overcurrent
	15	overcurrent notice (38 V)	PCB14	1: overcurrent
P007	0	primary charging assembly fan stop detection signal	FM1	1: stop
	1	fixing heat discharge fan stop detection signal	FM2	1: stop
	2	laser scanner fan stop detection signal	FM3	1: stop
	3	laser driver cooling fan stop detection signal	FM5	1: stop
	4	de-curling fan stop detection signal	FM6	1: stop
	5	feeding fan stop detection signal	FM7	1: stop
	6	drum fan stop detection signal	FM8	1: stop
	7	pre-transfer charging assembly fan stop detection signal	FM10	1: stop
	8	power supply cooling fan 1 stop detection signal	FM11	1: stop
	9	power supply cooling fan 2 stop detection signal	FM12	1: stop
	10	separation fan stop detection signal	FM13	1: stop
	11	laser scanner motor cooling fan stop detection signal	FM14	1: stop
	12	delivery anti-adhesion fan stop detection signal	FM17	1: stop
	13	developing fan stop detection signal	FM15	1: stop
	14	not used		
	15	not used		

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<DC-CON (4/8)>

Address	bit	Description	Notation	Remarks
P008	0	right deck pickup clutch	CL10	1: ON
	1	left deck pickup clutch	CL11	1: ON
	2	cassette 3 pickup cutch	CL12	1: ON
	3	cassette 4 pickup clutch	CL14	1: ON
	4	vertical path 1 clutch	CL8	1: ON
	5	vertical path 2 clutch	CL9	1: ON
	6	vertical path 3 clutch	CL13	1: ON
	7	vertical path 4 clutch	CL15	1: ON
	8	manual feed tray pickup clutch	CL7	1: ON
	9	manual feed tray feed clutch	CL18	1: ON
	10	pre-registration clutch	CL5	1: ON
	11	left deck feed clutch	CL19	1: ON
	12	lower feed middle clutch	CL16	1: ON
	13	lower feed right clutch	CL17	1: ON
	14	registrations brake clutch	CL3	1: ON
	15	delivery speed switch clutch	CL21	1: reversal
P009	0	inside hopper magnet roller drive clutch	CL1	1: ON
	1	developing cylinder clutch	CL4	1: ON
	2	developing cylinder deceleration clutch	CL20	1: ON
	3	right deck pickup solenoid	SL7	1: ON
	4	left deck pickup solenoid	SL8	1: ON
	5	cassette 3 pickup solenoid	SL9	1: ON
	6	cassette 4 pickup solenoid	SL10	1: ON
	7	manual feed pickup latch solenoid (return)	SL6	1: ON
	8	manual feed pickup latch solenoid (pull)	SL6	1: ON
	9	delivery flapper solenoid	SL3	1: ON
	10	reversing flapper solenoid	SL11	1: ON
	11	not used		
	12	not used		
	13	fixing web solenoid	SL2	1: ON
	14	fixing feeding unit lock solenoid (return)	SL4	0: ON
	15	fixing feeding unit lock solenoid (pull)	SL4	1: ON
P010	0	primary charging wire cleaner drive	M8	1: shift to rear
	1	primary charging wire cleaner drive	M8	1: shift to front
	2	pre-transfer charging wire drive	M7	1: shift to front
	3	pre-transfer charging wire cleaner drive	M7	1: shift to rear
	4	transfer/separation charging wire cleaner drive	M9	1: shift to rear
	5	transfer/separation charging wire cleaner drive	M9	1: shift to front
	6	not used		
	7	not used		

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<DC-CON (5/8)>

Address	bit	Description	Notation	Remarks
P011	0	drum motor drive	M0	0: ON
	1	main motor drive	M1	0: ON
	2	pickup motor drive	M2	0: ON
	3	fixing motor drive	M3	0: ON
	4	laser scanner motor drive	M4	1: ON
	5	cartridge motor drive	M6	1: ON
	6	hopper motor drive	M18	0: ON
	7	laser scanner motor switch	M4	0: high speed
P012	0	fixing main heater		1: ON
	1	fixing sub heater		1: ON
	2	cassette heater		0: ON
	3	drum heater		1: ON
	4	drum heater full wave/half wave		0: half wave
	5	horizontal registration current switch	M15	0: current increase
	6	lower feed motor stop	M12	0: stop
	7	reversal motor stop	M11	0: stop
P013	0	primary charging assembly fan full speed	FM1	1: ON
	1	primary charging assembly fan half speed	FM1	1: ON
	2	laser scanner fan full speed	FM3	1: ON
	3	laser scanner fan half speed	FM3	1: ON
	4	pre-transfer charging assembly fan full speed	FM10	1: ON
	5	pre-transfer charging assembly fan half speed	FM10	1: ON
	6	laser scanner motor cooling fan full speed	FM14	1: ON
	7	not used		
P014	0	feeding fan full peed	FM7	1: ON
	1	feeding fan half speed	FM7	1: ON
	2	separation fan full speed	FM13	1: ON
	3	separation fan half speed	FM13	1: ON
	4	de-curling fan full speed	FM6	1: ON
	5	developing fan full speed	FM15	1: ON
	6	developing fan half speed	FM15	1: ON
	7	not used		
P015	0	fixing heat discharge fan full speed	FM2	1: ON
	1	fixing heat discharge fan half speed	FM2	1: ON
	2	laser driver cooling fan full speed	FM5	1: ON
	3	delivery adhesion proofing fan full speed	FM17	1: ON
	4	drum fan full speed	FM8	1: ON
	5	drum fan half speed	FM8	1: ON
	6	power supply fan full speed	FM11/12	1: ON
	7	power supply fan half speed	FM11/12	1: ON

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<DC-CON (6/8)>

Address	bit	Description	Notation	Remarks
P016	0	pre-exposure lamp	LED1	1: ON
	1	potential sensor	PCB19	1: ON
	2	HVT DC component	HVT	0: high-voltage output ON
	3	HVT developing AC component	HVT	0: ON
	4	HVT pre-transfer AC/separation AC component	HVT	0: ON
	5	feed guide bias	PCB11	0: ON
	6	feed guide bias switch	PCB11	0: 200V, 1: 600V
	7	DDI		
P017	0	right deck lifter	PS21	1: ON
	1	left deck lifter	PS31	1: ON
	2	cassette 3 lifter	PS38	1: ON
	3	cassette 4 lifter	PS43	1: ON
	4	DDI		
	5	DDI		
	6	DDI		
	7	DDI		
P018	0	waste toner full detection reset		0: reset
	1	shut-off	SW1	1: shut-off
	2	not used		
	3	DDI		
	4	DDI		
	5	DDI		
	6	DDI		
	7	DDI		
P019	0	deck open indication	LED100	1: ON
	1	deck pickup solenoid		1: ON
	2	deck feed clutch	CL101	1: ON
	3	deck pickup clutch	CL102	1: ON
	4	deck main motor speed switch signal	DBIT0	at all time '0'
	5	deck main motor speed switch signal	DBIT1	at all time '0'
	6	deck main motor	M101	1: ON
	7	deck lifter motor	M102	1: ON
	8	deck UP/DW switch		1: down, 0: up
	9	deck open solenoid	SL102	1: ON
	10	not used		
	11	not used		
	12	not used		
	13	not used		
	14	not used		
	15	not used		
P020	0	deck open switch	SW100	1: ON
	1	deck paper detection		1: paper present

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<DC-CON (7/8)>

Address	bit	Description	Notation	Remarks
	2	deck lifter upper limit sensor	PS103	1: upper limit
	3	deck pickup sensor	PS101	1: paper present
	4	deck feed sensor	PS106	1: paper present
	5	deck pickup roller release solenoid	SL101	1: ON
	6	deck main motor lock detection		1: ON
	7	deck lifter position sensor	PS104	1: ON
	8	deck paper level sensor	PS108	1: paper present
	9	deck lifter lower limit detect switch	SW102	1: lower limit
	10	deck open sensor	PS109	1: ON
	11	deck open detect switch	SW101	1: open
	12	ID detection 1		1: connected
	13	ID detecting 2		1: connected
	14	not used		
	15	not used		
P021	0	not used		
	1	not sued		
	2	not used		
	3	not used		
	4	not used		
	5	not used		
	6	not used		
	7	not used		
	8	not used		
	9	not used		
	10	not used		
	11	not used		
	12	not used		
	13	not used		
	14	not used		
	15	not used		
P022	0	not used		
	1	not used		
	2	not used		
	3	not used		
	4	not used		
	5	not used		
	6	not used		
	7	not used		
P023	0	not used		
	1	not used		
	2	not used		
	3	not used		

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<DC-CON (8/8)>

Address	bit	Description	Notation	Remarks
	4	not used		
	5	not used		
	6	not used		
	7	not used		
	8	not used		
	9	not used		
	10	not used		
	11	not used		
	12	not used		
	13	not used		
	14	not used		
	15	not used		
P024	0	not used		
	1	not used		
	2	not used		
	3	not used		
	4	not used		
	5	not used		
	6	not used		
	7	not used		

<R-CON> (iR8500)

Input/Output Ports of the Reader Controller PCB

<R-CON (1/3)>

Address	bit	Description	Notation	Remarks
P001	0	original size detection 1	0: detected	
	1	original size detection 2	0: detected	
	2	original size detention 3	0: detected	
	3	original size detection 4	0: detected	
	4	copyboard cover open/closed detection	1: closed	
	5	not used		
	6	not used		
	7	not used		
P002	0	scanning lamp tube absent	1: absent	
	1	scanning lamp ON detection	1: ON, 0: OFF	
	2	not used		
	3	not used		
	4	scanner motor cooling fan	1: OFF	
	5	stream reading fan	1: OFF	
	6	inverter fan	1: OFF	
	7	not used		

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<R-CON (2/3)>

Address	bit	Description	Notation	Remarks
P003	0	original orientation detection PCB power detection	0: connected	
	1	original orientation detection PCB busy detection	0: busy	
	2	original orientation detection PCB error detection	0: error	
	3	not used		
	4	not used		
	5	not used		
	6	not used		
	7	CCD/AP type detection		
P004	0	inverter fan full speed	1: ON (24V)	
	1	inverter fan half speed	1: ON (12V)	
	2	scanner motor cooling fan full speed	1: ON (24V)	
	3	scanner motor cooling fan half speed	1: ON (12V)	
	4	stream reading fan ON	1: ON (24V)	
	5	not used		
	6	image leading edge select	1: copier, 0: ADF	
	7	size detection ON/OFF	1: ON	
P005	0	scanner motor D0		
	1	scanner motor D1		
	2	scanner motor D2		
	3	scanner motor D3		
	4	scanner motor CDWN0		
	5	scanner motor CDWN1		
	6	scanner motor CDWN2		
	7	not used		
P006	0	scanner motor CW/CCW	1: CW, 0: CCW	
	1	scanner motor OFF	0: OFF	
	2	not used		
	3	not used		
	4	scanning lamp pre-heat ON	0: ON	
	5	scanning lamp heater ON	0: ON	
	6	scanning lamp ON	0: ON	
	7	not used		
P007	0	CCD/AP ON/OFF	1: OFF, 0: ON	
	1	CCD/AP sync clock		
	2	CCD/AP sync data		
	3	CCD/AP RING2 load signal		
	4	CCD/AP F-AP load signal		
	5	CCD/AP B-AP load signal		
	6	not used		
	7	not used		

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<R-CON (3/3)>

Address	bit	Description	Notation	Remarks
P008	0	not used		
	1	not used		
	2	not used		
	3	not used		
	4	not used		
	5	not used		
	6	not used		
	7	not used		

<R-CON> (iR7200)

Indicates the input/output ports of the reader controller PCB.

<R-CON (1/3)>

Address	bit	Description	Notation	Remarks
IO-P01	0	scanner motor clock signal	M3	when 1→ 0, ON
	1	scanner motor CCW/CW switch signal		0: CCW, 1: CW
	2	scanner motor HOLD/OFF switch signal	M3	0: current hold, 1: current OFF
	3	scanner motor driver reset signal	M3	1: reset
	4	scanner motor stream reading current switch signal	M3	0: stream reading current
	5	original sensor ON switch signal	PS43	0: sensor ON
	6	fan error signal		not used
	7	scanning lamp ON switch signal	LA2	0: lamp ON
IO-P02	0	SK signal to EEPROM		normal clock
	1	DDI-SPI (1)		not used
	2	DDI-SPI (2)		not used
	3	DI signal to EEPROM		DATA area
	4	DDI-SCTS		0: DDI reception ready
	5	DDI-SPRDY		0: DDI power ready
	6	DDI-SCPRDY		0: DDI power ready
	7	scanning lamp inverter error signal		1: error
IO-P03	0	DDI-S transmission		DATA area
	1	RS232C transmission (factory terminal transmission)		DATA area
	2	DDI-S reception		DATA area
	3	RS232C reception (factory terminal reception)		DATA area
	4	ITOP transmission (image leading edge signal)		not used
	5	DDI-SRTS		0: DDI transmission ready
	6	not used		
	7	not used		

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<R-CON (2/3)>

Address	bit	Description	Notation	Remarks
IO-P04	0	DDI-SPO (0)		not used
	1	DDI-SPO (1)		not used
	2	DDI-SPO (2)		not used
	3	not used		
	4	not used		
	5	not used		
	6	original sensor 3 signal (AB input)	PS43	0: original present
	7	original sensor 4 signal (Inch input)	PS43	0: original present
IO-P05	0	DDI-SPRTST		0: DDI-SPRTST signal ON
	1	serial data to CCD		DATA area
	2	clock to CCD		when 0→1→0, data transmitted
	3	output to RING2		when 0→1→0, data transmitted
IO-P06	0	not used		
	1	PCB check mode (for factory)		0: check mode
	2	scanning lamp (LOW/HI) switch signal	LA2	not used
	3	CS output to EEPROM		1: CP
	4	scanner HP sensor signal	PS39	1:HP
	5	ADF-ITOP (image leading edge) signal		0: ADF original image leading edge interrupt
	6	copyboard cover sensor (used as interrupt)	PS40	1:ADF (copyboard) closed
	7	copyboard cover sensor	PS40	1:ADF (copyboard) closed
IO-P07	0	WATCH-DOG pulse output		normal clock
	1	output to analog processor		when 0 →1 → 0, data transmitted
	2	DO signal from EEPROM		Data area
	3-7	not used		
IO-P08	0-7	not used		
IO-P09	0	not used		
	1	not used		
	2	not used		
	3	not used		
	4	scanner motor drive control 2	M3	default setting
	5	scanner motor drive control 3	M3	default setting
	6	scanner motor drive control 4	M3	default setting
	7	scanner motor drive control (RETURN)	M3	default setting

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<R-CON (3/3)>

Address	bit	Description	Notation	Remarks
IO-P10	0	scanner motor drive control 0,1	M3	default setting
	1	scanner motor drive control 0,1	M3	default setting
	2	scanner motor drive control control	M3	default setting
	3	scanner motor drive control control	M3	default setting
	4	scanner motor drive control control	M3	default setting
	5	scanner motor drive control control	M3	default setting
	6	scanner motor drive control control	M3	default setting
	7	not used		

<FEEDER> (iR8500)

Indicates the input/output ports of the ADF controller PCB.

'0' is indicated while in operation (reading an original).

<FEEDER (1/4)>

Address	bit	Description	Notation	Remarks
IO-P01	0	pre-reversal solenoid	SL3	1: ON
	1	belt motor cooling fan		0: ON
	2	reversal solenoid	SL1	1: ON
	3	delivery solenoid (position 1)	SL4	1: ON
	4	delivery solenoid (position 2)	SL4	1: ON
	5	stopper plate solenoid (position 1)	SL2	1: ON
	6	stopper plate solenoid (position 2)	SL2	1: ON
	7	solenoid timer		0: ON
IO-P02	0	not used		
	1	not used		
	2	not used		
	3	not used		
	4	pickup roller home position sensor	PI7	1: home position
	5	pickup roller height sensor 2	PI9	1: original present
	6	pickup roller height sensor 1	PI8	1: original present
	7	pre-reversal sensor	PI4	1: original present
IO-P03	0	not used		
	1	original sensor LED		0: light-emitting
	2	not used		
	3	not used		
	4	not used		
	5	not used		
	6	not used		
	7	not used		

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<FEEDER (2/4)>

Address	bit	Description	Notation	Remarks
IO-P04	0	original sensor	S6	0: original present
	1	original trailing edge sensor		1: original present
	2	pre-last original sensor	S8	1: original present
	3	not used		
	4	separation motor	M4	
	5	delivery motor	M5	
	6	24V logic down detection		
	7	24V power down detection		
IO-P05	0	separation sensor	S4	0: original present
	1	separation sheet-to-sheet distance clock		during output, alternately '0' and '1'
	2	belt motor clock detection	PI1	during output, alternately '0' and '1'
	3	post-registration roller paper sensor	S3	0: original present
	4	manual feed registration roller paper sensor	S9	1: original present
	5	not used		
	6	not used		
	7	not used		
IO-P06	0	serial data output		1: transmit
	1	D/A load path		1: transmit
	2	EEPROM serial input		1: receive
	3	EEPROM chip select		0: EEPROM select
	4	serial reference clock		during output, alternately '0' and '1'
	5	separation motor clock detection	PI2	during output, alternately '0' and '1'
	6	not used		
	7	not used		
IO-P07	0	belt motor mode 1	M2	at all times, '0'
	1	belt motor mode 2	M2	at all times, '0'
	2	belt motor reference clock	M2	during output, alternately '0' and '1'
	3	belt motor CW/CCW	M2	0: delivery direction
	4	separation motor PWM	M4	during output, alternately '0' and '1'
	5	reversal motor phase B	M1	during output, alternately '0' and '1'
	6	delivery motor PWM	M5	during output, alternately '0' and '1'
	7	reversal motor phase A	M1	during output, alternately '0' and '1'
IO-P08	0	image leading edge signal		1: image leading edge
	1	pre-registration roller paper sensor	S2	0: original prevent

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<FEEDER(3/4)>

Address	bit	Description	Notation	Remarks
	2	separation motor reference clock		during output, alternately '0' and '1'
	3	delivery motor clock detection	PI11	during output, alternately '0' and '1'
	4	pickup motor phase A		during output, alternately '0' and '1'
	5	pick motor phase B		during output, alternately '0' and '1'
	6	pickup motor hold		1: output present
	7	AD trigger		1: output present
IO-P09	0	not used		
	1	separation clutch	CL	1: ON
	2	skew sensor	S5	1: original present
	3	original delivery sensor	PI13	1: original present
	4	manual feed set sensor	PI12	1: original present
	5	not used		
	6	reversal sensor	S1	1: original present
	7	registration roller rotation detection	PI5	during output, alternately '0' and '1'
IO-P10	0	DIP switch (DIPSW1) signal		0: ON
	1	DIP switch (DIPSW2) signal		0: ON
	2	DIP switch (DIPSW3) signal		0: ON
	3	DIP switch (DIPSW4) signal		0: ON
	4	DIP switch (DIPSW5) signal		0: ON
	5	DIP switch (DIPSW6) signal		0: ON
	6	upper cover sensor (front)		1: closed
	7	upper cover sensor (rear)		1: closed
IO-P11	0	7-segment LED0		0: ON
	1	7-segment LED1		0: ON
	2	7-segment LED2		0: ON
	3	7-segment LED3		0: ON
	4	7-segment LED4		0: ON
	5	7-segment LED5		0: ON
	6	7-segment LED6		0: ON
	7	ADF open/closed sensor		1: closed
I0-P12	0	original detection switch 0		1: ON
	1	original detection switch 1		1: ON
	2	original detection switch 2		1: ON
	3	original detection switch 3		1: ON
	4	original detection switch 4		1: ON
	5	push switch 1		0: ON
	6	push switch 2		0: ON
	7	push switch 3		0: ON

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<FEEDER (4/4)>

Address	bit	Description	Notation	Remarks
AD-P01		tray value		(hereafter, analog ports)
AD-P02		post-separation sensor analog input		
AD-P03		read sensor analog input		
AD-P04		delivery reversal sensor analog input		
AD-P05		not used		
AD-P06		not used		
AD-P07		not used		
AD-P08		not used		
DA-P01		reversal motor		(hereafter, analog ports)
DA-P02		belt motor		
DA-P03		original sensor adjustment		
DA-P04		trailing edge sensor adjustment		
DA-P05		post-separation sensor adjustment		
DA-P06		skew sensor adjustment		
DA-P07		pre-registration sensor adjustment		
DA-P08		post-registration sensor adjustment		
DA-P09		reversal sensor adjustment		
DA-P10		manual feed registration sensor adjustment		
DA-P11		pre-cycle end sensor adjustment		
DA-P12		separation motor		

<FEEDER> (iR7200)

Indicates the input/output ports of the ADF controller PCB.

<FEEDER (1/4)>

Address	bit	Description	Notation	Remarks
IO-P01	0	feed motor drive clock	M2	
	1	not used		
	2	feed motor clock LB	M2	
	3	pickup motor clock LB	M1	
	4	not used		
	5	delivery reversal motor clock LB	M3	
	6	large/small identification sensor signal	PI3	1: paper present (large)
	7	A4R/LTRR identification sensor signal	PI4	1: A4R
IO-P02	0	pickup motor drive clock signal	M1	
	1	pickup motor mode signal	M1	
	2	pickup motor CW/CCW signal	M1	
	3	pickup motor enable output	M1	
	4	not used		
	5	feed motor enable output	M2	1: enable

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<FEEDER (2/4)>

Address	bit	Description	Notation	Remarks
	6	pickup clutch drive signal	CL1	1: ON
	7	locking solenoid signal	SL1	1: attracted
IO-P03	0	serial communication		transmission (TxD0)
	1	image leading edge signal		
	2	serial communication		reception (RxD0)
	3	EEPROM data output		transmission (TxD1)
	4	EEPROM clock		(SCK0)
	5	EEPROM chip select		
	6	not used		
	7	not used		
IO-P04	0	original width VR signal	VR1	(AN0)
	1	post-separation sensor analog signal	S3	(AN1)
	2	read sensor analog signal	S2	(AN2)
	3	delivery reversal sensor analog signal	S1	(AN3)
	4	not used		
	5	not used		
	6	not used		
	7	not used		
IO-P05	0	external WDT clock output		
	1	D/A data output		
	2	D/A clock output		
	3	D/A load signal		
	4	not used		
	5	not used		
	6	not used		
	7	not used		
IO-P06	0	EEPROM data input		
	1	cooling fan lock signal	FM1	1: locked
	2	cooling fan	FM1	
	3	not used		
	4	post-separation sensor signal	S3	(IRQ0)
	5	registration 1 sensor signal	PI1	(IRQ1)
	6	read sensor signal	S2	(IRQ2)
	7	delivery reversal sensor signal	S1	(IRQ3)
IO-P07	0	not used		
	1	not used		
	2	not used		
	3	not used		
	4	not used		
	5	not used		
	6	not used		
	7	cover open switch	SW1	1: opened

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<FEEDER (3/4)>

Address	bit	Description	Notation	Remarks
IO-P08	0	ADF open/closed sensor signal	PI2	1: opened
	1	delivery reversing motor excitation phase (A) output	M3	during output, alternately '0' and '1'
	2	delivery reversing motor excitation phase (*A) output	M3	during output, alternately '0' and '1'
	3	delivery reversing motor excitation phase (B) output	M3	during output, alternately key '0' and '1'
	4	delivery reversing motor excitation phase (*B) output	M3	during output, alternately '0' and '1'
	5	feed motor mode output	M2	
	6	feed motor mode output	M2	
	7	feed motor (CW/CCW) switch signal	M2	1: CCW
IO-P09	0	DIP switch (DIPSW8) signal		0: ON
	1	DIP switch (DIPSW7) signal		0: ON
	2	DIP switch (DIPSW6) signal		0: ON
	3	DIP switch (DIPSW5) signal		0: ON
	4	DIP switch (DIPSW4) signal		0: ON
	5	DIP switch (DIPSW3) signal		0: ON
	6	DIP switch (DIPSW2) signal		0: ON
	7	DIP switch (DIPSW1) signal		0: ON
IO-P10	0	not used		
	1	not used		
	2	not used		
	3	not used		
	4	not used		
	5	not used		
	6	not used		
	7	not used		
IO-P11	0	LED ON signal	LED4	0: ON
	1	LED ON signal	LED3	0: ON
	2	LED ON signal	LED2	0: ON
	3	LED ON signal	LED1	0: ON
	4	not used		
	5	not used		
	6	not used		
	7	not used		

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<FEEDER (4/4)>

Address	bit	Description	Notation	Remarks
AD-P01		tray volume	VR1	(hereafter, analog ports)
AD-P02		post-separation sensor analog input	S3	
AD-P03		read sensor analog input	S2	
AD-P04		delivery paper reversal sensor analog input	S1	
AD-P05		not used		
AD-P06		not used		
AD-P07		not used		
AD-P08		not used		
DA-P01		pickup motor	M1	(hereafter, analog ports)
DA-P02		feed motor	M2	
DA-P03		delivery reversal motor	M3	
DA-P04		post-separation sensor_DA	S3	
DA-P05		post-separation sensor_TH	S3	
DA-P06		read sensor DA	S2	
DA-P07		read sensor TH	S2	
DA-P08		delivery reversal sensor_DA	S1	
DA-P09		delivery reversal sensor_TH	S1	
DA-P10		not used		
DA-P11		not used		
DA-P12		not used		

<SORTER>

Indicates the input/output ports of the finisher controller PCB.

<SORTER (1/12)>

Address	bit	Description	Notation	Remarks
P001	0	buffer motor A	M2	during output, alternately '0' and '1'
	1	buffer motor B	M2	during output, alternately '0' and '1'
	2	buffer motor A*	M2	during output, alternately '0' and '1'
	3	buffer motor B*	M2	during output, alternately '0' and '1'
	4	delivery motor A	M3	during output, alternately '0' and '1'
	5	delivery motor B	M3	during output, alternately '0' and '1'
	6	upper path switch solenoid	SL2	0: ON
	7	buffer path switch solenoid	SL1	1: keep, 0: release

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<SORTER (2/12)>

Address	bit	Description	Notation	Remarks
P002	0	front aligning plate motor B	M4	during output, alternately '0' and '1'
	1	front aligning plate motor A	M4	during output, alternately '0' and '1'
	2	inlet motor brake	M1	1: brake
	3	post-buffer path paper sensor	PI3	1: paper present
	4	rear aligning plate motor B	M5	during output, alternately '0' and '1'
	5	rear aligning plate motor A	M5	during output, alternately '0' and '1'
	6	stack delivery motor clock	M7	during output, alternately '0' and '1'
	7	inlet motor clock	M1	during output, alternately '0' and '1'
P003	0	EEPROM serial output		
	1	slave write serial output		
	2	EEPROM serial output		
	3	slave write serial output		
	4	EEPROM serial clock		
	5	EEPROM load signal		
	6	not used		
	7	not used		
P004	0	tray A detection	PI20	1: paper present
	1	puncher identification 1		
	2	puncher identification 2		
	3	delivery sensor	PI32	1: paper present
	4	lower path paper sensor	PI4	1: paper present
	5	upper path paper sensor	PI6	1: paper present
	6	inlet path paper sensor	PI2	1: paper present
	7	buffer path paper sensor	PI3	1: paper present
P005	0	delivery motor ON	M3	1: OFF, 0: ON
	1	delivery motor current switch	M3	1: constant, 0: speed up
	2	inlet motor ON	M1	1: OFF, 0: ON
	3	inlet motor CW*/CCW	M1	1: CCW, 0: CW
	4	not used		
	5	not used		
	6	not used		
	7	not used		

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<SORTER (3/12)>

Address	bit	Description	Notation	Remarks
P006	0	trimmer connection detection		1: connected
	1	DPRAM chip select		0: cs
	2	stapler interference position detection		1: interference, 0: ready
	3	staple cartridge identification		1: 50 sheets, 0: 100 sheets
	4	punch path sensor	S1	0: paper present
	5	stack delivery motor FG	PI11	during output, alternately '0' and '1'
	6	inserter motor FG*	PI67	during output, alternately '0' and '1'
	7	buffer motor FG*	M2	during output, alternately '0' and '1'
P007	0	not used		
	1	not used		
	2	not used		
	3	not used		
	4	not used		
	5	delivery motor FG*	M3	during output, alternately '0' and '1'
	6	inlet motor FG*	M1	during output, alternately '0' and '1'
	7	folder motor FG*	M71	during output, alternately '0' and '1'
P008	0	slave write signal		1: normal, 0: write
	1	slave CPU reset		0: reset
	2	master busy signal		0: busy
	3	not used		
	4	not used		
	5	not used		
	6	not used		
	7	not used		
P009	0	handling tray solenoid ON		1: ON, 0: OFF
	1	EXPNDER chip selects		0: cs
	2	IPC chip select		0: cs
	3	PI0 chip selects		0: cs
	4	EPROM chip select		0: cs
	5	not used		
	6	not used		
	7	not used		

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<SORTER (4/12)>

Address	bit	Description	Notation	Remarks
P010	0	staple absent detection		1: staple absent, 0: staple present
	1	READY detection		1: NO, 0: ready
	2	tray B approach detection		0: ON
	3	door 24V power-down detection		1: down
	4	feed path paper detection 1	PI76	1: paper present
	5	feed path paper detection 2	S7	1: paper present
	6	feed path paper detection 3	S8	1: paper present
	7	feed path paper detection 4	PI75	1: paper present
P011	0	inserter cover open /closed detection		1: open
	1	stack wall safety detection		1: error
	2	inserter unit detection		1: absent, 0: present
	3	puncher unit detection		1: absent, 0: present
	4	paper folding unit detection		1: absent, 0: present
	5	saddle unit detection		1: absent, 0: present
	6	stapler interference sensor connection detection		1: connected
	7	fan rotation error detection		1: error, 0: normal
P012	0	swing motor high speed setting	M8	1: ON
	1	swing motor medium speed setting	M8	1: ON
	2	swing motor low-speed setting	M8	1: ON
	3	swing motor ON*	M8	1: OFF, 0: ON
	4	power supply fan ON signal	FM1	1: ON, 0: OFF
	5	buffer motor ON signal	M2	1: OFF, 0: ON
	6	buffer motor current swing	M2	1: constant, 0: speed up
	7	trailing edge solenoid ON	SL5	0: ON
P013	0	stack delivery motor CW*	M7	1: CCW, 0: CW
	1	stack delivery motor ON*	M7	1: OFF, 0: ON
	2	stack delivery start-up current switch		1: up, 0: down
	3	front aligning plate motor ON	M4	1: OFF, 0: ON
	4	rear aligning plate motor ON	M5	1: OFF, 0: ON
	5	tray auxiliary plate motor A		
	6	tray auxiliary plate motor B		
	7	tray auxiliary plate motor ON		1: OFF, 0: ON
P014	0	knurled belt motor phase A	M20	
	1	knurled belt motor phase B	M20	
	2	knurled belt motor ON	M20	1: OFF, 0: ON
	3	paddle motor A	M9	
	4	paddle motor B	M9	
	5	paddle motor ON	M9	1: OFF, 0: ON
	6	folder motor gain switch	M71	1: high speed, 0: low speed
	7	not used		

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<SORTER (5/12)>

Address	bit	Description	Notation	Remarks
P015	0	paddle home position sensor detection	PI14	0: HP
	1	folder set detection	PI71	1: present, 0: absent
	2	inserter open detection	PI66	1: closed, 0: open
	3	front cover switch open detection		1: closed, 0: open
	4	folder upper cover switch	MSW71	1: closed, 0: open
	5	upper cover open closed detection	PI72	1: closed, 0: open
	6	folder path residual paper detection 1	PI73	1: present, 0: absent
	7	saddle inlet front path sensor	PI59	1: paper present
P016	0	puncher waste paper feed motor ON	M16	1: ON
	1	saddle tray solenoid ON		
	2	punch power ON		1: ON
	3	inlet motor gain adjustment		1: high speed, 0: low speed
	4	power OFF		1: down
	5	saddle path flapper solenoid ON	SL44	0: ON
	6	inserter motor ON	M61	1: OFF, 0: ON
	7	unit identification signal		1: identified
P017	0	inserter separation detection 1	PI62	1: paper prevent, 0: paper absent
	1	inserter separation detection 2	PI63	1: paper prevent, 0: paper absent
	2	inserter feed detection 3	PI61	1: paper prevent, 0: paper absent
	3	tray B paper detection	PI17	1: paper prevent, 0: paper absent
	4	tray A paper detection	PI20	1: paper prevent, 0: paper absent
	5	swing guide closed detection	PI14	0: closed
	6	swing guide home position detection	PI15	1: HP
	7	handling tray paper detection	PI32	1: paper present
P018	0	punch waste paper detection	PI26	1: set
	1	punch waste paper feed motor error detection	PI27	1: normal, 0: error
	2	feed cooling fan error detection	FM2	1: error, 0: normal
	3	knurled belt home position detection	PI31	1: HP
	4	shutter home position sensor		0: HP
	5	rear aligning plate home position sensor	PI8	1: HP
	6	front aligning plate home position sensor	PI7	1: HP
	7	tray auxiliary plate extraction sensor	PI10	1: HP

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COPIER>I/O
<SORTER (6/12)>

Address	bit	Description	Notation	Remarks
P019	0	check switch 1 (for test mode)		0: ON
	1	check switch 2 (for test mode)		0: ON
	2	check switch 3 (for test mode)		0: ON
	3	check switch 4 (for test mode)		0: ON
	4	check switch 5 (for test mode)		0: ON
	5	check switch 6 (for test mode)		0: ON
	6	check switch 7 (for test mode)		0: ON
	7	check switch 8 (for test mode)		0: ON
P020	0	P switch for ENTER		0: ON
	1	P switch for +		0: ON
	2	P switch for -		0: ON
	3	puncher identification		
	4	for adjustment 0		0: ON
	5	for adjustment 1		0: ON
	6	for adjustment 2		0: ON
	7	for adjustment 3		0: ON
P021	0	segment a (dot)		1: ON
	1	segment b (middle)		1: ON
	2	segment c (left upper)		1: ON
	3	segment d (left lower)		1: ON
	4	segment e (lower)		1: ON
	5	segment f (right lower)		1: ON
	6	segment g (right upper)		1: ON
	7	segment dot (upper)		1: ON
P022	0	not used		
	1	insert motor speed switch 1	M61	
	2	insert motor speed switch 2	M61	1: ON
	3	inserter separation in sensor	PI61/62	1: paper present
	4	inserter paper sensor	S9	1: paper present
	5	inserter pickup solenoid	SL61	1: ON
	6	inserter stopper plate solenoid	SL62	0: ON
	7	inserter separation clutch	CL61	1: ON
P023	0	folder feed motor ON		1: ON
	1	folder inlet solenoid ON		1: ON
	2	pressure releasing solenoid ON		1: ON
	3	B4 folder No. 2 stopper solenoid ON	SL72	1: ON
	4	locking solenoid ON		1: ON
	5	B4 folder No. 1 stopper solenoid ON	SL75	1: ON
	6	folder path residual paper detection 2	PI77	1: paper present
	7	folder path residual paper detection 3	PI74	1: paper present

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<SORTER (7/12)>

Address	bit	Description	Notation	Remarks
P024	0	address bus 8		
	1	address bus 9		
	2	address bus 10		
	3	punch 2/3-hole detection	PI33	1: 3-hole, 0: 2-hole
	4	punch motor home position detection	PI22	1: home position
	5	tray A position detection 1		1: light-blocked
	6	tray A position detection 2		1: light-blocked
	7	tray A position detection 3		1: light blocked
P025	0	tray B lift motor A	M12	
	1	tray B lift motor B	M12	
	2	tray B lift motor A*	M12	
	3	tray B lift motor B*	M12	
	4	tray A lift motor A	M13	
	5	tray A lift motor B	M13	
	6	tray A lift motor A*	M13	
	7	tray A lift motor B*	M13	
P026	0	tray B position detection 1		1: light blocked
	1	tray B position detection 2		1: light blocked
	2	tray B position detection 3		1: light blocked
	3	stapler home position detection		0: home position
	4	not used		
	5	not used		
	6	not used		
	7	not used		
P027	0	slave busy R		0: busy
	1	stapler shift home position detection	PI16	1: home position
	2	punch home position detection	PI24	
	3	not used		
	4	not used		
	5	not used		
	6	not used		
	7	paper edge sensor slide home position detection	PI23	1: home position
P028	0	waste sensor		0: waste absent, 1: waste present
	1	lower path sensor adjustment		1: normal, 0: error
	2	tray A sensor		1: absent, 0: present
	3	tray B sensor		1: absent, 0: present
	4	tray A paper detection	PI20	1: absent, 0: present
	5	tray A paper detection	PI17	1: absent, 0: present
	6	punch feed path detection	S1	
	7	buffer path sensor	PI3	

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<SORTER (8/12)>

Address	bit	Description	Notation	Remarks
P029	0	punch paper edge detection 1	PI21	
	1	punch paper edge detection 2	PI21	
	2	tray B idle rotation detection	PI18	
	3	tray A idle rotation detection	PI19	
	4	punch position detection	PI25	1: rear, 0: front
	5	not used		
	6	not used		
	7	not used		
P030	0	D/A serial output		
	1	flash serial output		
	2	punch motor ON	M18	1: OFF, 0: ON
	3	flash serial input		
	4	D/A serial clock		
	5	not used		
	6	not used		
	7	not used		
P031	0	stapler shift motor ON*	M10	1: keep, 0: drive
	1	D/A load signal		
	2	stapler shift motor A	M10	
	3	stapler shift motor B	M10	
	4	stapler shift motor A*	M10	
	5	stapler shift motor B*	M10	
	6	stapler motor CCW*	M11	0: CCW
	7	stapler motor CW*	M11	0: CW
P032	0	punch motor PWM	M18	
	1	DPRAM chip select		
	2	punch slide motor clock	PI34	1: ON, 0: OFF
	3	punch motor	M18	
	4	punch slide motor direction switch		1: rear, 0: front
	5	punch motor direction switch CW	M18	1: OFF, 0: ON
	6	punch motor direction switch CCW	M18	1: OFF, 0: ON
	7	punch slide motor current switch		1: constant speed, 0: speed up
P033	0	stitch motor (rear) CW signal	M46	0: CW
	1	stitch motor (rear) CCW signal	M46	0: CCW
	2	stitch motor (front) CW signal	M47	0: CW
	3	stitch motor (front) CCW signal	M47	0: CCW
	4	paper fold motor CW drive signal	M42	0: CW
	5	paper fold motor CCW drive motor	M42	0: CCW
	6	No. 1 paper deflecting plate solenoid drive signal	SL41	0: ON
	7	No. 2 paper deflecting plate solenoid drive signal	SL42	0: ON

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<SORTER (9/12)>

Address	bit	Description	Notation	Remarks
P034	0	not used		
	1	not used		
	2	not used		
	3	not used		
	4	not used		
	5	feed roller contact solenoid drive signal	SL43	1: ON
	6	solenoid timer (full draw) output		0: ON
	7	paper position plate motor power	M44	0: ON
P035	0	24V power down detection		1: down
	1	paper pushing plate leading edge position detection	M56	1: leading edge
	2	delivery detection	PI52	0: paper present
	3	not used		
	4	not used		
	5	not used		
	6	not used		
	7	not used		
P036	0	not used		
	1	not used		
	2	paper pushing plate home position detection	PI55	1: home position
	3	aligning plate home position detection	PI48	0: home position
	4	saddle tray home position detection	PI41	0: home position
	5	not used		
	6	not used		
	7	not used		
P037	0	paper position panel home position detection	PI49	0: home position
	1	not used		
	2	inlet cover open detection connector connection	PI51	0: connected
	3	not used		
	4	feed roller phase detection	PI53	1: flag present
	5	aligning plate home position detection connection	PI48	0: home position
	6	not used		
	7	not used		

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<SORTER (10/12)>

Address	bit	Description	Notation	Remarks
P038	0	paper position panel motor phase A	M44	
	1	paper position plate motor phase B	M44	
	2	paper pushing plate motor PWM	M48	
	3	feed motor	M41	0: ON
	4	feed motor phase A	M41	
	5	feed motor path B	M41	
	6	feed motor reference clock	M41	
	7	paper pushing plate motor CCW	M48	0: CCW
P039	0	alignment motor phase A	M45	
	1	alignment motor phase B	M45	
	2	paper folder motor PWM	M42	
	3	paper pushing plate motor CW	M48	0: CW
	4	guide motor phase A	M43	
	5	guide motor phase B	M43	
	6	guide motor	M43	0: ON
	7	alignment motor	M45	0: ON
P040	0	No. 2 paper detection	PI61	0: paper present
	1	No. 3 paper detection	PI62	0: paper present
	2	stitching home position detection (rear)	MS32	1: home positon
	3	stitching home position detection (front)	MS34	1: home position
	4	paper position plate paper detection	PI50	0: paper present
	5	No. 1 paper detection	PI60	0: paper present
	6	vertical path paper detection	PI57	0: paper present
	7	not used		
P041	0	aligining plate home position detection connector connection	PI48	1: connected
	1	not used		
	2	outlet over open detection connector detection	PI46	1: connected
	3	not used		
	4	paper pushing plate leading edge position detection connector connection	PI56	1: connected
	5	paper pushing plate home position detection connector connection	PI55	1: connected
	6	saddle tray paper detection 2	PI43	1: paper present
	7	saddle tray paper detection 3	PI44	1: paper present

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<SORTER (11/12)>

Address	bit	Description	Notation	Remarks
P042	0	not used		
	1	LED 1 drive		
	2	saddle tray motor phase A	M49	
	3	saddle tray motor phase B	M49	
	4	not used		
	5	not used		
	6	not used		
	7	not used		
P043	0	staple detection (front)	MS33	0: staple absent
	1	staple detection (rear)	MS31	0: staple absent
	2	not used		
	3	not used		
	4	outlet cover open detection	PI46	0: open
	5	not used		
	6	inlet cover open detection	PI51	0: open
	7	not used		
P044	0	DIPSW1 bit 8		0: ON
	1	DISPW1 bit 7		0: ON
	2	DIPSW1 bit 6		0: ON
	3	DIPSW1 bit 5		0: ON
	4	DIPSW1 bit 4		0: ON
	5	DIPSW1 bit 3		0: ON
	6	DIPSW1 bit 2		0: ON
	7	DIPSW1 bit 1		0: ON
P045	AN1	not used		
P046	AN6	not used		
P047	AN7	not used		
P048	DA1	not used		
P049	DA2	not used		
P050	DA3	not used		
P051	DA4	not used		
P052	DA5	not used		
P053	DA6	not used		
P054	DA7	not used		
P055	DA8	not used		
P056	DA9	not used		
P057	DA10	not used		
P058	DA11	not used		
P059	DA12	not used		
P060	AN0	staple detection (rear)	MS31	92 or higher, staple present
P061	AN1	staple detection (front)	MS33	92 or higher, staple present
P062	AN2	not used		

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<SORTER (12/12)>

Address	bit	Description	Notation	Remarks
P063	AN3	inlet cover open detection connector connection	PI51	128 or higher, connected
P064	AN4	saddle tray home position detection connector connection	PI41	128 or higher, connected
P065	AN5	guide home position detection connector connection	PI54	128 or higher, connected
P066	AN6	not used		
P067	AN7	paper pushing plate leading edge position detection connector connection	PI56	128 or higher, connected

<MN-CONT>

Indicates the input/output ports of the main controller PCB.

<MN-CONT(1/2)>

Address	bit	Description	Notation	Remarks
P001	0	not used (1; fixed)		
	1	not used (1; fixed)		
	2	not used (1; fixed)		
	3	not used (1; fixed)		
P002	0	DDI-S general input		not used
	1	DDI-S general input		not used
	2	DDI-S general input		not used
	3	SPRTST signal, printer start-up signal	SP1	0: reader image start
P003	0	DDI-P general input		not used
	1	DDI-P general input		not used
	2	DDI-P general input		not used
	3	PS LNST signal (scanner start-up signal)	PP1	0: reader start
P004	0	DDI-S general output		not used
	1	DDI-S general output		not used
	2	3.3V non all-night power OFF signal		0: normally ON, 1: 5W (OFF sleep mode)
	3	SSCNST signal	SP0	not used
P005	0	DDI-P general output		not used
	1	DDI-P general output		not used
	2	DDI-P general output		not used
	3	PPRTST signal	PP0	0: printer image start
P006	0	battery alarm		1: error
	1	parallel EEPROM R/B#		0: busy, 1: ready
	2	flash ROM R/B#		0: busy, 1: ready
	3	serial ROM connection detection		1: connected
	4	operation enable (card reader)		0: enable

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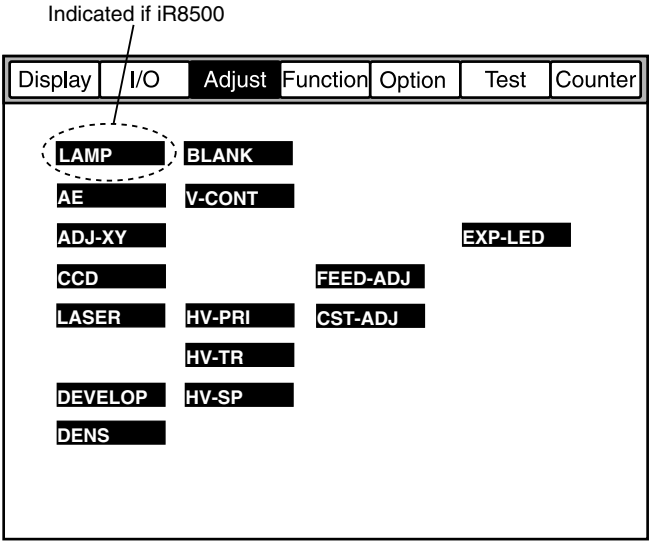
<MN-CONT (2/2)>

Address	bit	Description	Notation	Remarks
	5	operation enable (coin vendor)		0: enable
	6	serial EEPROM D0		access port to EEPROM
	7	HD connection detection	GP1	0: HD present, 1: HD absent
P007	0	battery charge control		0: enable, 1: disable
	1	not used		
	2	not used		
	3	not used		
	4	PCI (PDL) soft reset		0: LIPS board forced reset
	5	serial EEPROM CS		for factory
	6	serial EEPROM SCK		for factory
	7	serial EEPROM DIN		for factory
	8	pickup count		1: count
	9	delivery count		1: count
	10	coin vendor pickup count		1: count (not used)
	11	coin vendor delivery count		1: count (not used)
	12	LCD backlight control		1: ON
	13	not used		
	14	parallel EEPROM write protect		0: write, 1: protect
	15	not used		
P008	0	not used		
	1	not used		
	2	not used		
	3	color UI detection		0: color UI present
	4	BW VI detection		0: black and white UI present
	5	BAT board detection		0: present
	6	not used		
	7	not used		

COPIER>ADJUST

2.3 ADJUST

The following screen appears in response to COPIER>ADJUST:



F00-203-01

A change to each item under COPIER>ADJUST becomes valid when the main power switch is turned off and then on.

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<LAMP> (Indicated if iR8500)

Use it to adjust the voltage used to turn on the scanning lamp.

L-DATA

Use it to enter scanning lamp intensity data.

Range of adjustment

0 to 1023
• A higher setting increases the intensity.
• A lower setting decreases the intensity.
If a faulty image is generated after execution of COPIER>FUNCTION>CCD>CCD-ADJ, enter the setting indicated on the service label.

<AE>

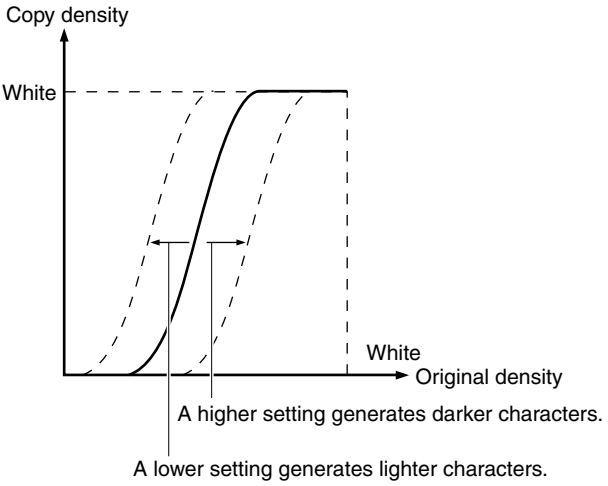
Use it to adjust AE.

AE-TBL

Use it to adjust the density of characters for image density adjustment.

Range of adjustment

1 to 9; default: 5



F00-203-02

COPIER>ADJUST
<ADJ-XY>

Use it to adjust the image read start position.

If you have cleared the RAM on the reader controller PCB or replaced the reader controller PCB, enter the setting indicated on the service label.

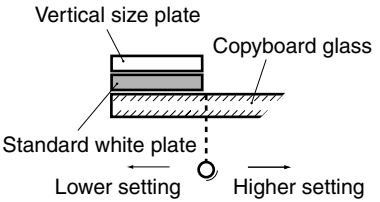
ADJ-X

Use it to adjust the image read start position (main scanning direction).

Range of adjustment

iR8500: 0 to 2970
iR7200: 250 to 290
(1 being equal to 0.1mm)

- Be sure to perform it before adjusting the margin.
- Do not use it to create a margin.



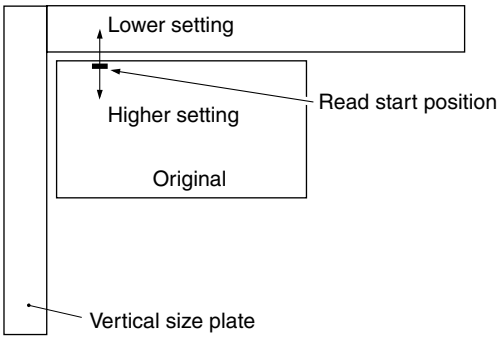
F00-203-03

ADJ-Y

Use it to adjust the image read start position (sub scanning direction).

Range of adjustment

iR8500: 0 to 1000
iR7200: 100 to 400
(1 being equal to 0.1mm)



F00-203-04

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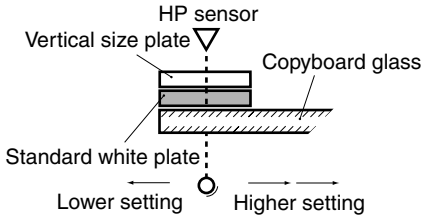
ADJ-S

Use it to adjust the scanner home position.

Range of adjustment

iR8500: 0 to 4
iR7200: 16 to 128
(1 being equal to 0.1mm)

Memo Use it to cause the machine to read the standard white plate while avoiding a soiled area (if any) of the copyboard glass.



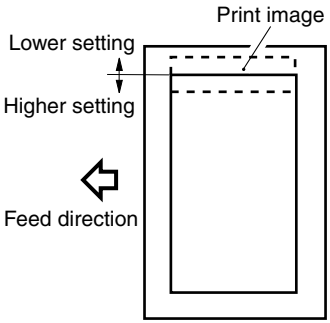
F00-203-05

ADJ-Y-DF

Use it to adjust the read start position in main scanning direction for the ADF (ADF horizontal registration adjustment).

Range of adjustment

iR8500: 0 to 1000
iR7200: 100 to 400
(1 being equal to 0.1mm)



F00-203-06

STRD-POS (Indicated if iR7200)

Use it to adjust the CCD read position for stream reading.

Range of adjustment

0 to 60 (1 being equal to 0.1mm)

COPIER>ADJUST
<CCD> (iR8500)

Use it to make/shading-related adjustments.

If a faulty image is generated after execution of COPIER>FUNCTION>CCD>CCD-ADJ/LUT-ADJ (LUT-ADJ2), enter the setting indicated on the service label.

SH-TRGT	Use it to enter the white level for shading correction. 1 to 2043
GAIN-E-R	Use it to enter the gain for the last half even-numbered pixels of the CCD. 0 to 1023
GAIN-O-R	Use it to enter the gain for the last half odd-numbered pixels of the CCD. 0 to 1023
GAIN-E-F	Use it to enter the gain for the first half even-numbered pixels of the CCD. 0 to 1023
GAIN-O-F	Use it to enter the gain for the first half odd-numbered pixels of the CCD. 0 to 1023
OFST-E-R	Use it to enter the offset level for the last half even-numbered pixels of the CCD. 0 to 1023
OFST-O-R	Use it to enter the offset level for the last half odd-numbered pixels of the CCD. 0 to 1023
OFST-E-F	Use it to enter the offset level for the first half even-numbered pixels of the CCD. 0 to 1023
OFST-O-F	Use it to enter the offset level for the first half odd-numbered pixels of the CCD. 0 to 1023
LUT-O-R1	Use it to enter the data for link correction of the last half odd-numbered pixels of the CCD. 0 to 1023
LUT-O-R2	Use it to enter the data for link correction of the last half odd-numbered pixels of the CCD. 0 to 1023

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LUT-O-R3	Use it to enter the data for link correction of the last half odd-numbered pixels of the CCD. 0 to 1023
LUT-O-R4	Use it to enter the data for link correction of the last half odd-numbered pixels of the CCD. 0 to 1023
LUT-O-R5	Use it to enter the data for link correction of the last half odd-numbered pixels of the CCD. 0 to 1023
LUT-E-R1	Use it to enter the data for link correction of the last half even-numbered pixels of the CCD. 0 to 1023
LUT-E-R2	Use it to enter the data for link correction of the last half even-numbered pixels of the CCD. 0 to 1023
LUT-E-R3	Use it to enter the data for link correction of the last half even-numbered pixels of the CCD. 0 to 1023
LUT-E-R4	Use it to enter the data for link correction of the last half even-numbered pixels of the CCD. 0 to 1023
LUT-E-R5	Use it to enter the data for link correction of the last half even-numbered pixels of the CCD. 0 to 1023
LUT-O-F1	Use it to enter the data for link correction of the first half odd-numbered pixels of the CCD. 0 to 1023
LUT-O-F2	Use it to enter the data for link correction of the first half odd-numbered pixels of the CCD. 0 to 1023
LUT-O-F3	Use it to enter the data for link correction of the first half odd-numbered pixels of the CCD. 0 to 1023
LUT-O-F4	Use it to enter the data for link correction of the first half odd-numbered pixels of the CCD. 0 to 1023

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COPIER>ADJUST

LUT-O-F5	Use it to enter the data for link correction of the first half odd-numbered pixels of the CCD. 0 to 1023
LUT-E-F1	Use it to enter the data for link correction of the first half even-numbered pixels of the CCD. 0 to 1023
LUT-E-F2	Use it to enter the data for link correction of the first half even-numbered pixels of the CCD. 0 to 1023
LUT-E-F3	Use it to enter the data for link correction of the first half even-numbered pixels of the CCD. 0 to 1023
LUT-E-F4	Use it to enter the data for link correction of the first half even-numbered pixels of the CCD. 0 to 1023
LUT-E-F5	Use it to enter the data for link correction of the first half even-numbered pixels of the CCD. 0 to 1023

<CCD> (iR7200)

Use it to make/shading-related adjustments.

If faulty images are generated after executing of COPIER>FUNCTION>CCD>CCD-ADJ, enter the settings indicated on the service label.

SH-TRGT	Use it to enter the white level target value for shading correction. 130 to 255
SH-RATIO	Use it to enter the data on the white level ratio (standard white paper and standard white plate) for shading correction. 150 to 300
EGGN-ST	Use it to enter an adjustment value for the edge gain correction start position for the CCD. 100 to 250
EGGN-END	Use it to enter an adjustment value for the edge gain correction end position for the CCD. 100 to 250

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<LASER>

Use it to adjust the laser output.

If you have cleared the RAM on the DC controller PCB or replaced the DC controller PCB, enter the setting indicated on the service label.

PVE-OFST	Use it to adjust the point of laser B radiation.
Range of adjustment	**-300 to 300** • A higher setting shifts the point toward the rear. • A lower setting shifts the point toward the front. The point for laser A radiation shifts in keeping with the point for laser B radiation.
LA-DELAY	Use it to enter the delay value for the laser unit.
Range of adjustment	**0 to 4807** Use it to adjust the delay line of pixels so that laser A and laser B may be coordinated in main scanning direction. If you have replaced the laser unit, enter the value indicated on the label attached to the laser unit.
LA-PWR-A	Use it to enter the power adjustment value for laser A.
Range of adjustment	**0 to 255** If you have replaced the laser unit, enter the power adjustment value for laser A indicated on the unit.
LA-PWR-B	Use it to enter the power adjustment value for laser B.
Range of adjustment	**0 to 255** If you have replaced the laser unit, enter the power adjustment value for laser B indicated on the unit.
DLY-FINE	Use it to fine-adjust (correct) the discrepancy of laser A/laser B.
Range of adjustment	**-16 to 16**

COPIER>ADJUST
<DEVELOP>

Use it to adjust the developing bias output.

DE-DC	Use it to enter the developing DC output value for image area formation.
Range of adjustment	**0 to 600**
DE-NO-DC	Use it to enter the developing DC output value for non-image area formation.
Range of adjustment	**0 to 600**
HVT-DE	Use it to enter the offset value for the developing high-voltage output of the high-voltage unit.
Range of adjustment	**-50 to 50** If you have replaced the high-voltage unit, be sure to enter the settings indicated on the label attached to the new high-voltage unit. If you have replaced the DC controller PCB or cleared its RAM, on the other hand, be sure to enter the settings indicated on the service label (See Chapter 6 “Troubleshooting”>2.7.8 “Points to Note When Replacing the High-Voltage DC PCB”).
D-HV-DE	Use it to enter the offset value for the developing high-voltage output of the DC controller PCB.
Range of adjustment	**-100 to 100** If you have replaced the DC controller PCB, be sure to enter the setting indicated on the label attached to the new DC controller PCB. If you have cleared the RAM on the DC controller PCB, on the other hand, be sure to enter the settings indicated on the service label (See Chapter 6 “Troubleshooting”>2.7.7 “When Replacing the DC controller PCB”).

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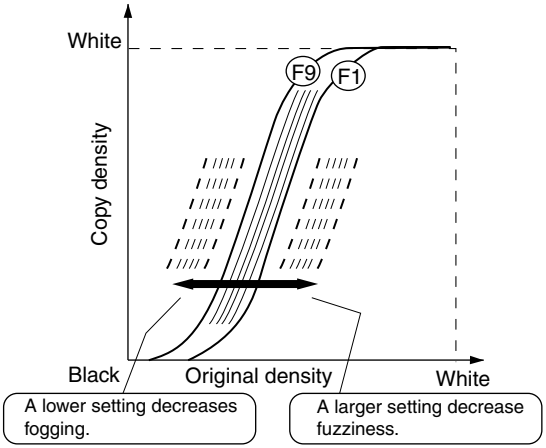
<DENS>

Use it to fine-adjust the copy density auto correction mechanism.

DENS-ADJ	Use it to correct the density of images (copier/printer). If images have fogging or the high-density area is fuzzy, the F-value table will be corrected.
Range of adjustment	**1 to 9 [default: 5]**



F00-203-07

<BLANK>

Use it to adjust the non-image width.

If you have cleared the RAM on the DC controller PCB or replaced the DC controller PCB, enter the setting indicated on the service label.

BLANK-T	Use it to enter the image leading edge non-image width value.
Range of adjustment	**0 to 2392**
BLANK-B	Use it to enter the image trailing edge non-image width value.
Range of adjustment	**0 to 2392**

COPIER>ADJUST

BLANK-TE	Use it to enter the left/right non-image width in main scanning direction.
Range of adjustment	**10 to 50 (1 being equal to 0.1 mm) [default: 25]**

<V-CONT>

Use it to adjust the potential control mechanism.

If you have cleared the RAM on the DC controller PCB or replaced the DC controller PCB, enter the setting indicated on the service label.

EPOTOFST	Use it to enter the offset value for the potential sensor.
Range of adjustment	**0 to 30**
VL-OFST	Use it to enter the offset value for the potential control light-area target potential.
Range of adjustment	**-50 to 50 (1 being equal to 1 V)**
VD-OFST	Use it to enter the offset value for the potential control dark area target potential.
Range of adjustment	**-50 to 50 (1 being equal to 1 V)**
DE-OFST	Use it to enter the offset value for potential control Vdc.
Range of adjustment	**-50 to 50 (1 being equal to 1 V)**
OHP-OFST	Use it to enter the offset value for transparency potential control Vdc.
Range of adjustment	**-50 to 50 (1 being equal to 1 V)**

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<HV-PRI>

Use it to adjust the output of the primary charging assembly.

If you have cleared the RAM on the DC controller PCB or replaced the DC controller PCB, enter the setting indicated on the service label.

GRID	Enter the adjustment value of the grid current for the primary charging assembly.
Range of adjustment	**400 to 900**

<HV-TR>

Use it to adjust the output of the transfer charging assembly/pre-transfer charging assembly.

TR-N1	Use it to enter the output adjustment value of the transfer charging current (for plain paper, printing on one side or on the 1st side of a double-sided print).
Range of adjustment	**-650 to 0**
	If you have cleared the RAM on the DC controller PCB or replaced the DC controller PCB, enter the setting indicated on the service label.
TR-N2	Use it to enter the output adjustment value of the transfer charging current (for plain paper, printing on the 2nd side of a double-sided print).
Range of adjustment	**-650 to 0**
	If you have cleared the RAM on the DC controller PCB or replaced the DC controller PCB, enter the setting indicated on the service label.
PRE-TR	Use it to enter the output value of the pre-transfer charging current.
Range of adjustment	**0 to 300**
	If you have cleared the RAM on the DC controller PCB or replaced the DC controller PCB, enter the setting indicated on the service label.

COPIER>ADJUST

HVT-TR	Use it to enter the offset value of the transfer high-voltage output of the high-voltage unit.
Range of adjustment	**-100 to 100**
	If you have replaced the high-voltage unit, be sure to enter the settings indicated on the label attached to the new high-voltage unit. If you have replaced the DC controller PCB or cleared its RAM, on the other hand, be sure to enter the settings indicated on the service label (See Chapter 6 “Troubleshooting”>2.7.9 “Points to Note When Replacing the High-Voltage DC PCB”).
H-PRE-TR	Enter the offset value of the pre-transfer high-voltage output for the high-voltage unit.
Range of adjustment	**-100 to 100**
	If you have replaced the high-voltage unit, be sure to enter the settings indicated on the label attached to the new high-voltage unit. If you have replaced the DC controller PCB or cleared its RAM, on the other hand, be sure to enter the settings indicated on the service label (See Chapter 6 “Troubleshooting”>2.7.9 “Points to Note When Replacing the High-Voltage DC PCB”).
D-PRE-TR	Use it to enter the offset value of the pre-transfer high-voltage output for the DC controller PCB.
Range of adjustment	**-100 to 100**
	If you have replaced the DC controller PCB, be sure to enter the setting indicated on the label attached to the new DC controller PCB. If you have cleared the RAM on the DC controller PCB, on the other hand, be sure to enter the settings indicated on the service label (See Chapter 6 “Troubleshooting”>2.7.7 “When Replacing the DC controller PCB”).

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D-HV-TR

Use it to enter the offset value of the transfer high-voltage output for the DC controller PCB.

Range of adjustment

-100 to 100

If you have replaced the DC controller PCB, be sure to enter the setting indicated on the label attached to the new DC controller PCB. If you have cleared the RAM on the DC controller PCB, on the other hand, be sure to enter the settings indicated on the service label (See Chapter 6 “Troubleshooting”>2.7.7 “When Replacing the DC controller PCB”).

<HV-SP>

Use it to adjust the output of the separation charging assembly.

SP-N1

Use it to enter the output adjustment value of the separation charging current (for plain paper, printing on one side or on the 1st side of a double-sided print).

Range of adjustment

0 to 800

If you have cleared the RAM on the DC controller PCB or replaced the DC controller PCB, enter the setting indicated on the service label.

SP-N2

Use it to enter the output adjustment value of the separation charging current (for plain paper, printing on the 2nd side of a double-sided print).

Range of adjustment

0 to 800

If you have cleared the RAM on the DC controller PCB or replaced the DC controller PCB, enter the setting indicated on the service label.

COPIER>ADJUST

HVT-SP	Use it to enter the offset value of the separation high-voltage output for the separation unit.
Range of adjustment	**-100 to 100**
	If you have replaced the high-voltage unit, be sure to enter the settings indicated on the label attached to the new high-voltage unit. If you have replaced the DC controller PCB or cleared its RAM, on the other hand, be sure to enter the settings indicated on the service label (See Chapter 6 “Troubleshooting”>2.7.8 “Points to Note When Replacing the High-Voltage DC PCB”).
D-HV-SP	Use it to enter the offset value of the separation high-voltage output for the DC controller PCB.
Range of adjustment	**-100 to 100**
	If you have replaced the DC controller PCB, be sure to enter the setting indicated on the label attached to the new DC controller PCB. If you have cleared the RAM on the DC controller PCB, on the other hand, be sure to enter the settings indicated on the service label (See Chapter 6 “Troubleshooting”>2.7.7 “When Replacing the DC controller PCB”).

<FEED-ADJ>

Use it to adjust the feeding system.

If you have cleared the RAM on the DC controller PCB or replaced the DC controller PCB, enter the setting indicated on the service label.

REGIST	Set it to adjust the timing at which the registration roller clutch goes ON.
	Memo A higher setting delays the timing, decreasing the leading edge margin.
Range of adjustment	**-100 to 100 (1 being equal to 0.1 mm)**
ADJ-REFE	Use it to adjust the horizontal registration for re-pickup. • If the image is displaced to the front, increase the setting.
Range of adjustment	**-100 to 100 (1 being equal to 0.1 mm)**

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<CST-ADJ>

Use it to adjust cassette/manual feeder-related items.

If you have cleared the RAM on the DC controller PCB or replaced the DC controller PCB, enter the setting indicated on the service label.

C3-STMTR	Use it to enter the paper width basic value for cassette 3 (STMTR).
Range of adjustment	**0 to 255** If you have replaced the paper width detecting VR, execute the following service mode: FUNCTION>CST.
C3-A4R	Use it to enter the paper width basic value for cassette 3 (A4R).
Range of adjustment	**0 to 255** If you have replaced the paper width detecting VR, execute the following service mode: FUNCTION>CST.
C4-STMTR	Use it to enter the paper width basic setting for cassette 4 (STMTR).
Range of adjustment	**0 to 255** If you have replaced the paper width detecting VR, execute the following service mode: FUNCTION>CST.
C4-A4R	Use it to enter the paper width basic value for cassette 4 (A4R).
Range of adjustment	**0 to 255** If you have replaced the paper width detecting VR, execute the following service mode: FUNCTION>CST.
MF-A4R	Use it to enter the paper width basic value for the manual feed tray (A4R).
Range of adjustment	**0 to 255** If you have replaced the paper width detecting VR, execute the following service mode: FUNCTION>CST.

COPIER>ADJUST

MF-A6R	Use it to enter the paper width basic value for the manual feed tray (A6R).
Range of adjustment	**0 to 255** If you have replaced the paper width detecting VR, execute the following service mode: FUNCTION>CST.
MF-A4	Use it to enter the paper width basic value for the manual feed tray (A4).
Range of adjustment	**0 to 255** If you have replaced the paper width detecting VR, execute the following service mode: FUNCTION>CST.
C3-LVOL	Use it to enter the level of stacking for cassette 3 (50 sheets).
Range of adjustment	**0 to 255**
C3-HVOL	Use it to enter the level of stacking for cassette 3 (250 sheets).
Range of adjustment	**0 to 255**
C4-LVOL	Use it to enter the level of stacking for cassette 4 (50 sheets).
Range of adjustment	**0 to 255**
C4-HVOL	Use it to enter the level of stacking for cassette 4 (250 sheets).
Range of adjustment	**0 to 255**

<EXP-LED>

Use it to adjust the exposure lamp.

If you have cleared the RAM on the DC controller PCB or replaced the DC controller PCB, enter the setting indicated on the service label.

PRE-TR	Use it to enter the output adjustment value for the pre-transfer exposure lamp.
Range of adjustment	**20 to 80**

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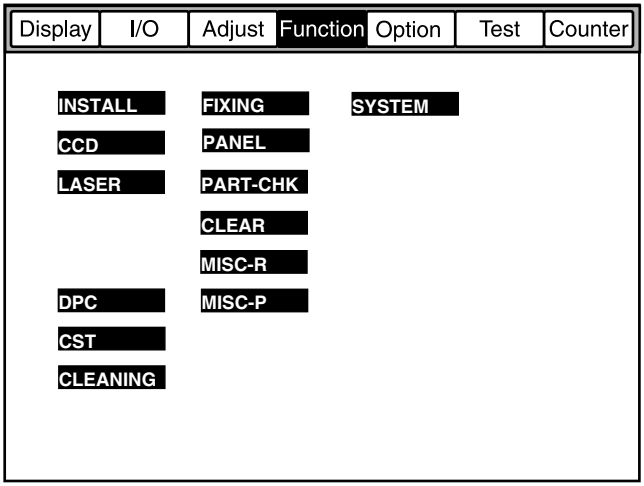
2.4 FUNCTION

The following screen appears in response to COPIER>FUNCTION:



F00-204-01

COPIER>FUNCTION
<INSTALL>

Use it at time of installation.

TONER-S

Use it to supply toner from the hopper to the developing assembly and to stir the toner inside the developing assembly.

- Before pressing the OK key, check to make sure that the developing assembly is securely mounted.
- Do not turn off the power while machine is in operation.

<Using the Mode>

1) Select the item, and press the OK key.
2) See that the machine supplies toner (about 8 to 10 min).

- While toner is being supplied, a count-down is indicated in sec starting at 600 sec.

3) See that the machine automatically stops toner supply.

STRD-POS (Indicated if iR7200)

Use it to execute auto adjustment of the position of the CCD read position for stream reading mode.

- Execute this mode at time of installing an ADF or if you have removed and then installed the existing ADF.

<Using the Mode>

1) Select this item, and press the OK key.

- Auto adjustment is executed.

2) See that the adjustment ends automatically.
3) Record the updated setting indicated in service mode on the service label: COPIER>ADJUST>ADJ-XY>STRD-POS.

CARD

Use it to enter numbers for the card reader.

Input value

1 to 2001

Default: 0 (not connected)

As many as 1000 cards may be used (starting with the number entered; e.g., If the number entered is 1, cards between No. 1 and No. 1000 may be used. If the number entered is 2001, cards between No. 2001 and 3000 may be used.

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<CCD> (iR8500)

Use it to execute auto adjustment for CCD/shading-related items.

CCD-ADJ

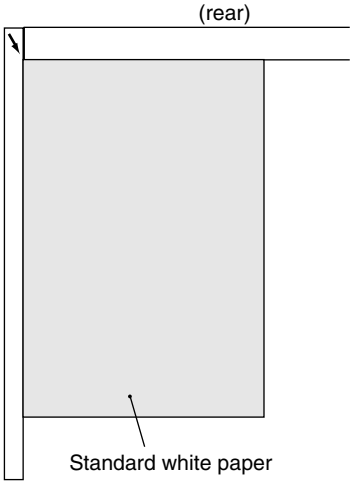
Use it to execute CCD auto adjustment.

Memo

- If you have replaced any of the following or cleared the RAM on the Reader controller PCB, execute this mode and LUT-ADJ(LUT-ADJ2): reader controller PCB, CCD/AP PCB, CCD unit, scanning lamp, scanning lamp inverter PCB, copyboard glass, standard white plate, light adjustment control PCB, light adjustment sensor PCB.
- Use the whitest of all the sheets used by the user (except sheets for color printing).

<Using the Mode>

1) Place standard white sheets (10 sheets or more) on the copyboard glass.
2) Select the item, and press the OK key.
3) See that the machine executes auto adjustment (about 1 min).
4) See that the machine stops automatically after making adjustments.
5) All items of service mode (COPIER>ADJUST>LAMP, COPIER> ADJUST>CCD) are updated; print a service label, and store it away.



F00-204-02

COPIER>FUNCTION

LUT-ADJ

Use it to execute CCD gain simple correction.

- After executing CCD-ADJ, execute this mode to correct the defense in density along the image middle (joint).
- Be sure to execute CCD-ADJ before executing this mode.

<Using the Mode>

1) Select the item, and press the OK key.
2) See that the machine executes auto adjustment.
3) See that the machine stops automatically after making adjustments.
4) The items in service mode (COPIER>ADJUST>LAMP, COPIER> ADJUST>CCD) are updated; print out a service label, and store it away.

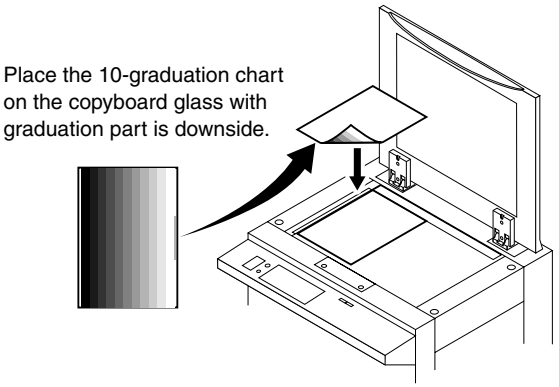
LUT-ADJ2

Use it to execute CCD gain fine adjustment.

- If the difference in density cannot be corrected by executing LUT-DJ (CCD gain simplified correction), execute this mode using the 10-gradation chart.

<Using the Mode>

1) As shown, place the 10-gradation chart (D-10 Test Sheet) on the copyboard glass.
2) Select the item, and press the OK key.
3) See that the machine executes automatic adjustment.
4) See that the machine stops automatically after making adjustments.
5) The items in service mode (COPIER>ADJUST>LAMP, COPIER> ADJUST>CCD) are updated; print out the service label, and store it away.



F00-204-03

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<CCD> (iR7200)

Use it to execute auto adjustment for CCD/shading-related items.

CCD-ADJ

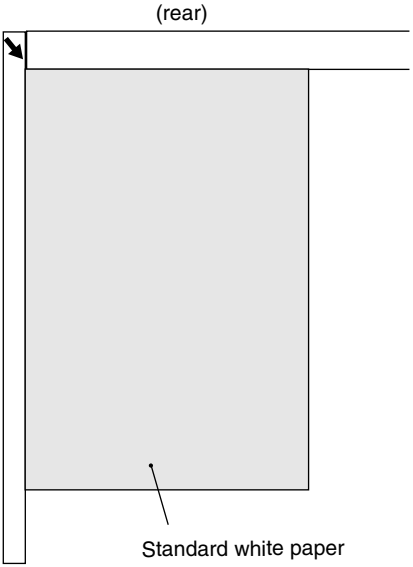
Use it to execute CCD auto adjustment.

- Execute this mode if you have replaced the CCD unit, scanning lamp,inverter PCB, or copyboard glass (standard white plate).
- Use the whitest of all papers used by the user as the standard white paper.

<Using the Mode>

1) Place sheets of standard white paper (10 sheets min.) on the copyboard glass.
2) Select the mode item, and press the OK key.
- The machine executes auto adjustment (about 1 min).
- The machine stops operation at the end of auto adjustment.

3) Record the updated settings on the service label (all under COPIER>ADJUST>CCD).



F00-204-04

COPIER>FUNCTION

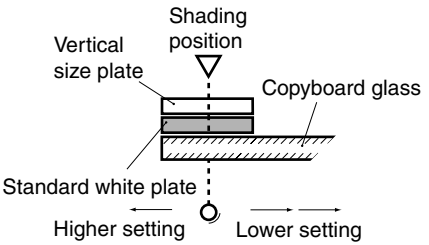
SHDG-POS

Use it to enter data for changing the position of measurement on the standard white plate used for shading correction.

Range of adjustment

216 to 296 (a multiple of 8 causes a shift of about 0.189 mm)

- If dirt is found on the copyboard glass, execute this mode to avoid the area when reading the standard white plate.
- You must execute the following if you have changed the setting: COPIER>FUNCTION>CCD>SH-PS-ST.



F00-204-05

SH-PS-ST

Use it to execute optimum position auto adjustment for the standard white plate for shading correction.

- You must execute COPIER>FUNCTION>CCD>CCD-ADJ before executing this move.
- Execute this mode if you have replaced the copyboard glass (standard white plate) or a white line is noted in halftone areas.

<Using the Mode>

1) Clean the back of the copyboard glass.
2) Open the ADF (copyboard cover).
3) Select <SH-PS-ST> to highlight, and press the OK key.
4) The machine executes automatic adjustment (about 10 sec).
5) When done, the machine stops automatically indicating the result (OK/NG).

- If 'NG' is indicated, perform the following, and execute the mode once again:

a. Is the ADF (copyboard cover) open?
b. Is the copyboard glass mounted correctly?
c. Is the standard white plate (attached to the copyboard glass) normal?
d. Does the scanning lamp go ON?

6) The items under COPIER>ADJUST>ADJ-XY and ADJ-S are updated. Record the new settings on the service label.

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EGGN-POS

Use it to execute auto adjustment for the edge gain correction position for the CCD (The CCD edge gain correction mechanism is effective only when an ADF is in use).

- If the CCD unit has been replaced, be sure to execute the following in advance: COPIER>FUNCTION>CCD>CCD-ADJ.
- If the CCD unit, No. 1 mirror mount, or No. 2 mirror mount has been replaced, execute this mode.

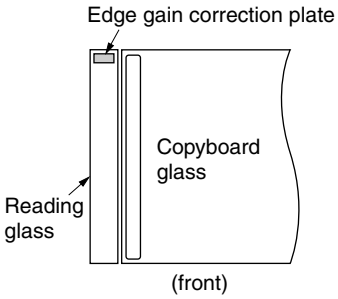
<Using the Mode>

1) Open the ADF (copyboard cover; be sure to do so).
2) Select the item, and press the OK key.
3) Wait until auto adjustment ends (about 1 sec).
4) See that auto adjustment ends automatically and the results (OK/NG) are indicated.

- If NG is indicated, check the following, and execute adjustment once

a. Is the ADF (copyboard cover) open?
b. Is the reading glass mounted correctly?
c. Is the edge gain correcting plate attached to the reading glass normal?
d. Is the scanning lamp on?

5) When the following has been updated, enter the new settings:
COPIER>ADJUST>CCD-EGGN-ST and -EGGN-END.



F00-204-06

COPIER>FUNCTION

<LASER>

Use it to adjust laser-related items.

POWER-A	Use it to turn on laser A. <Using the Mode> 1) Select <POWER-A> to highlight, and press the OK key. 2) The laser goes ON. See that the display changes from 'START' to 'ACTIVE' (flashing), and <SERVICE> appears in the upper right of the screen. 3) The laser goes OFF automatically in about 60 sec. See that the display shows 'OK!'.
POWER-B	Use it to turn on laser B. <Using the Mode> 1) See the descriptions for 'POWER-A'.

<DPC>

Use it to adjust potential sensor-related items.

OFST	Use it to adjust the offset for the potential sensor. ⚠ This mode is part of the series of procedures to perform when replacing the potential sensor unit. Do not use this mode on its own (See Chapter 6 "Troubleshooting">2.7.10 "Points to Note When Replacing the Potential Sensor/Potential Control PCB"). <Using the Mode> 1) Select the item, and press the OK key. 2) See that the machine automatically stops after adjusting the offset.

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<CST>

Use it to execute size auto adjustment for the cassette/manual feed tray.

C3-STMTR C3-A4R C4-STMTR C4-A4R	Use it to register the paper width basic value for cassette 3/4. STMTR width: 139.5 mm A4R width: 210 mm To make fine adjustments after registering the basic value, use the following: ADJUST>CST-ADJ>C3-STMTR, C3-A4R, C4-STMTR, C4-A4R. <Using the Mode> 1) Place STMTR paper in the cassette, and adjust the side guide plate to suit the width of the paper. 2) Select C3-STMTR (C4-STMTR), and press the OK key. • After auto adjustment, the value will be stored. 3) Likewise, repeat steps 1) and 2) for A4R.
MF-A4R MF-A6R MF-A4	Use it to register the paper width basic value for the manual feed tray. A4R width: 210 mm A6R width: 105 mm A4 width: 297 mm To make fine adjustments after registering the basic value, use the following: ADJUST>CST-ADJ>MF-A4R, MF-A6R, MF-A4. <Using the Mode> 1) Place A4R paper in the manual feed tray, and adjust side guide to the width of the paper. 2) Select MF-A4R, and press the OK key. • After auto adjustment, the value will be stored. 3) Likewise, repeat steps 1) and 2) for A6R, and A4.

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COPIER>FUNCTION
<CLEANING>

Use it to operate the cleaning mechanism.

WIRE-CLN	Use it to execute auto cleaning of the charging wire 5 times in succession (5 back-and-forth trips). If you have replaced the primary charging wire or the transfer charging wire, be sure to execute this mode. <Using the Mode> 1) Select the item, and press the OK key. 2) See that the machine executes automatic cleaning of the charging wire 5 times in succession. 3) See that the machine stops automatically after cleaning the wire.

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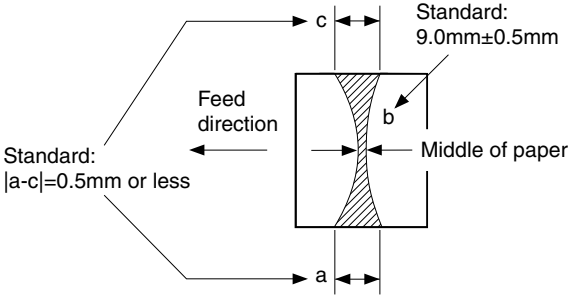
<FIXING>

Use it to execute auto adjustment of fixing assembly-related items.

NIP-CHK

Use it to generate a print for measuring the fixing nip width.
<Using the Mode>
1) Make about 20 prints of A4 Test Sheet.
2) Place A4 paper in the manual sheet tray.
3) Select the item to highlight, and press the OK key.
- After pickup, the paper stops between the fixing rollers once, and will then be delivered in about 20 sec.

4) Measure the width of the indicated area.



F00-204-07

a and b are points 10 mm from both ends of the paper.

COPIER>FUNCTION <PANEL>

Use it to turn on the control panel indications.

LCD-CHK	Use it to check the touch panel for missing dots. <Using the Mode> 1) Select the item, and press the OK key. • The entire face of the touch panel will repeatedly change in the following sequence: white, black, red, green, and red. 2) Press the Stop key to stop the operation.
LED-CHK	Use it to check the LEDs in the control panel. <Using the Mode> 1) Select the item, and press the OK key. • The LEDs will go on in sequence. 2) Select LED-OFF to end the operation.
LED-OFF	Use it to end a check on the LEDs in the control panel. 1) Select the item to end the LED-CHK operation.
KEY-CHK	Use it to check key inputs. <Using the Mode> 1) Select the item. 2) Press the key to check. If normal, its corresponding character will be indicated on the touch panel (T00-204-01). 3) At the end of the check, select KEY-CHK to end the operation.
TOUCHCHK	Use it to adjust the coordinates of the touch panel. • Try to match a press on the touch panel and its coordinates on the LCD. • Execute this mode if you have replaced the LCD. <Using the Mode> 1) Select the item, and press the OK key. 2) Press the symbol + appearing on the touch panel in sequence (9 in total).

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<Input Keys and Display>

Key name	Notation on screen	Key name	Notation on screen
Counter check	BILL	Start	START
0 to 9	0 to 9	Reset	RESET
Stop	STOP	Save Power	STAND BY
ID	ID	Clear	CLEAR
User Mode	USER	Guide	?

T00-204-01

<PART-CHK>

Use it to check the operation of each load.

CL	Use it to select the clutch whose operation you want to check. <Using the Mode> 1) Select the item. 2) Enter the code of the clutch using the keypad (T00-204-02). 3) Press the OK key.
CL-ON	Use it to check the operation of the clutch. <Using the Mode> 1) Select the item, and press the OK key. • The clutch will go ON, remain ON for 10 sec, go OFF, remain OFF for 10 sec, go ON, and OFF.
MTR	Use it to select the motor whose operation you want to check. <Using the Mode> 1) Select the item. 2) Enter the code of the motor using the keypad (T00-204-03). 3) Press the OK key.
MTR-ON	Use it to check the operation of the motor. <Using the Mode> 1) Select the item, and press the OK key. • The motor will remain ON for 20 sec and then go OFF. • In the case of the hopper motor and the duplex horizontal registration motor, 10 sec ON → OFF. • In the case of the shift tray motor, stops at front/rear HP.

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COPIER>FUNCTION

SL	Use it to select the solenoid whose operation you want to check. <Using the Mode> 1) Select the item. 2) Enter the code of the solenoid using the keypad (T00-204-04). 3) Press the OK key.
SL-ON	Use it to check the operation of the solenoid. <Using the Item> 1) Select the item, and press the OK key. • The solenoid will go ON, remain OFF for 10 sec, go ON, remain OFF for 10 sec, go ON, and then OFF.

<Codes and Clutch Names>

Code	Name	Code	Name
1	Manual feed tray pickup clutch (CL7)	12	Lower feed right clutch (CL17)
2	Cassette 3 pickup clutch (CL12)	13	Deck (left) feed clutch (CL19)
3	Vertical path 3 clutch (CL13)	14	Delivery speed switching clutch (CL21)
4	Cassette 4 pickup clutch (CL14)	15	Registration brake clutch (CL3)
5	Vertical path 4 clutch (CL15)	16	Manual feed tray feed clutch (CL18)
6	Deck (right) pickup clutch (CL10)	17	Inside hopper magnet roller drive clutch (CL1)
7	Vertical path 1 clutch (CL8)		
8	Deck (left) pickup latch (CL11)	18	Developing sleeve clutch (CL4)
9	Vertical path 2 clutch (CL9)	19	Registration clutch (CL2)
10	Pre-registration clutch (CL5)	20	Side paper deck feed clutch (CL101)
11	Lower feed middle clutch (CL16)	21	Side paper deck pickup clutch (CL102)

T00-204-02

<Codes and Motor Names>

Code	Name	Code	Name
1	Drum motor (M0)	6	Inside hopper toner feed motor (M18)
2	Main motor (M1)	7	Duplex reversal motor (M11)
3	Pickup motor (M2)	8	Duplex feed motor (M12)
4	Fixing motor (M3)	9	Side paper deck main motor
5	Inside cartridge toner feed motor (M6)	10,11	not used

T00-204-03

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<Codes and Solenoid Names>

Code	Name	Code	Name
1	Deck (right) pickup solenoid (SL7)	7	Delivery flapper solenoid (SL3)
2	Deck (left) pickup solenoid (SL8)	8	Reversal flapper solenoid (SL11)
3	Deck 3 pickup solenoid (SL9)	9	Fixing web solenoid (SL2)
4	Cassette 4 pickup solenoid (SL10)	10	Fixing feed unit lock solenoid (SL4)
5	Manual feed pickup clutch solenoid (SL6)	11	Fixing feed unit lock solenoid (SL4)
		12	Shutoff
6	Manual feed pickup clutch solenoid (SL6)	13	Side paper deck pickup solenoid

T00-204-04

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COPIER>FUNCTION
<CLEAR>

Use it to clear the RAM, jam history, or error code history.
Be sure to turn off and then on the main power switch to complete the work.

ERR	Use it to clear an error code. <Using the Mode> 1) Select the item, and press the OK key. 2) Turn off and then on the main power switch.
DC-CON	Use it to clear the RAM on the DC controller PCB. <Using the Mode> 1) Select the item, and press the OK key. 2) Turn off and then on the main power switch.
R-CON	Use it to clear the RAM on the reader controller PCB. <Using the Mode> 1) Select the item, and press the OK key. 2) Turn off and then on the main power switch.
SERVICE	Use it to clear the backup data of service mode (COPIER>OPTION). <Using the Mode> 1) Select the item, and press the OK key. 2) Turn off and then on the main power switch.
JAM-HIST	Use it to clear the jam history. <Using the Mode> 1) Select the item, and press the OK key. 2) Turn off and then on the main power switch.
ERR-HIST	Use it to clear the error history. <Using the Mode> 1) Select the item, and press the OK key. 2) Turn off and then on the main power switch.
E354-CLR	---
E355-CLR	---

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PWD-CLR	Use it to clear the password of the 'system administrator' selected in user mode. <Using the Mode> 1) Select the item, and press the OK key. 2) Turn off and then on the main power switch.
ADRS-BK	Use it to clear all addresses stored in the address book. <Using the Mode> 1) Select the item, and press the OK key. 2) Turn off and then on the main power switch.
CNT-MCON	Use it to clear the counter readings for service whose data is kept by the main controller PCB. <Using the Mode> 1) Select the item, and press the OK key. 2) Turn off and then on the main power switch.
CNT-DCON	Use it to clear the counter readings for service whose data is kept by the DC controller PCB. <Using the System> 1) Select the item, and press the OK key. 2) Turn off and then on the main power switch.
MMI	Use it to clear the backup data of user mode settings (specifications, ID mode, group ID, mode memory, etc.). <Using the Mode> 1) Select the item, and press the OK key. 2) Turn off and then on the main power switch.
CARD	Use it to clear a group ID for the card reader. <Using the Mode> 1) Select the item, and press the OK key. 2) Turn off and then on the main power switch.
ALARM	Use it to clear the alarm history. <Using the Mode> 1) Select the item, and press the OK key. 2) Turn off and then on the main power switch.

COPIER>FUNCTION

<MISC-R>

Use it to check the operation of the reader unit.

SCANLAMP	Use it to check the activation of the scanning lamp. <Using the Mode> 1) Select the item, and press the OK key. • The scanning lamp will go on. 2) See that the scanning lamp goes OFF after remaining ON for several sec (iR8500). 2) Press the Stop key to turn off the lamp (iR7200).

<MISC-P>

Use it to check the operation of the printer unit.

P-PRINT	Use it to print out a list of service modes (COPIER>ADJUST/OPTION/ COUNTER). <Using the Mode> 1) Select the item, and press the OK key. • A list of service modes will be printed out.
KEY-HIST	Use it to print out a history of key inputs made from the control panel. <Using the Mode> 1) Select the item, and press the OK key. • A list of key inputs will be printed out.
HIST-PRT	Use it to print out a history of jams, errors, or alarms (service mode). <Using the Mode> 1) Select the item, and press the OK key. • A history of jams, errors, or alarms will be printed out.
USER-PRT	Use it to print out a list of user modes (from service mode). <Using the Mode> 1) Select the item, and press the OK key. • A list of user modes will be printed out.

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P-TR-EXP	Use it to check the activation of the pre-transfer exposure lamp. <Using the Mode> 1) Select the item, and press the OK key. • The pre-transfer exposure lamp will go ON. 2) See that the pre-transfer exposure lamp will go OFF in several sec.
LBL-PRNT	Use it to print out the service label. <Using the Mode> 1) Place paper in the manual feed tray. When printing the service label, be sure always to use the manual feed tray. 2) Select the item, and press the OK key. • The service label will be printed out. • Keep the generated service label in the service book case behind the front cover.
PRE-EXP	Use it to check the activation of the pre-exposure lamp. <Using the Mode> 1) Select the item, and press the OK key. • The pre-exposure lamp will go ON. 2) See that the machine will automatically go OFF after remaining for several sec.

<SYSTEM>

Use it to check system-related operations.

DOWNLOAD	Use it to switch the system program to download mode. Use it when downloading the systems program. <Using the Mode> 1) Turn off the machine and the PC. 2) Disconnect the network-related cable for the machine. 3) Connect the machine and the PC using a bi-Centronics cable or a network cable. 4) Turn on the PC. 5) Turn on the machine. 6) Select the item, and press the OK key. 7) Download using the Service Support Tool (See Chapter 6 “Troubleshooting”>7 “Upgrading”). 8) When done, turn off and then on the main power switch.

COPIER>FUNCTION

CHK-TYPE	Use it to select a partition number when executing HD-CHECK or HD-CLEAR. <Using the Mode> 1) Select the item. 2) Select a partition number using the keypad. 0: entire HDD 1: image storage area 2: general-purpose file storage area 3: PDL-related file storage area 4: program file storage area 3) Press the OK key.
HD-CHECK	Use it to for checking and recovery of the partition selected using CHK-TYPE. <Using the Mode> 1) Select the item. 2) Press the OK key. 3) Check the result. TYPE 0: OK/NG (hardware), NG (software) number of recovery sector TYPE 1 to 4: OK/NG
HD-CLEAR	Use it to initialize the partition selected using CHK-TYPE. <Using the Mode> 1) Select the item. You cannot select '0' and '4'. 2) Press the OK key. 3) When done, see that 'OK' is indicated.
MOR-RES	Use it to install the font resource file (from MORISAWA) to the HDD once again. Steps to Follow 1) Select the item. 2) Press the OK key. 3) See that 'OK' is indicated at the end.
MOR-LIST	Use it to print a list of fonts (from MORISAWA) and the password. Steps to Follow 1) Select the item. 2) Press the OK key. 3) See that 'OK' is indicated at the end.

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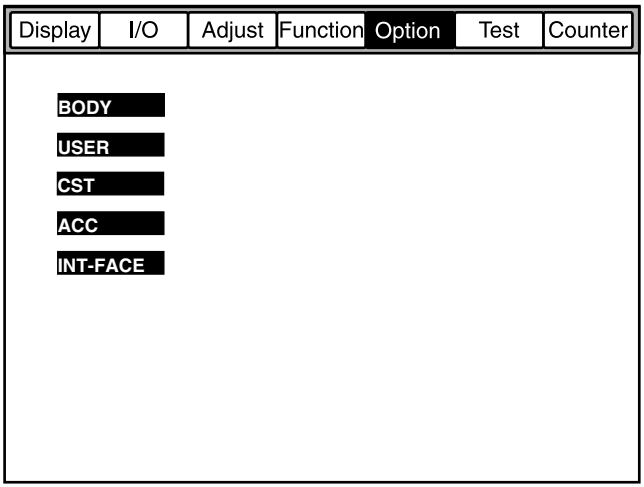
2.5 OPTION

The following screen will appear in response to COPIER>OPTION.



F00-205-01

For each item under COPIER>OPTION, the updated settings will become effective when the main power switch is turned off and then on.

COPIER>OPTION
<BODY>

Use it to select copier-related machine settings.

PO-CNT	
	Use it to turn on/off the potential control mechanism.
Setting	**0: OFF** **1: ON (default)**
TRNSG-SW	
	Use it to select a transfer guide bias control mode.
Setting	**0: 200 V if absolute moisture content is 22 g or more; 600 V if others** **1: fixed to 600 V** **2: fixed to 200 V** **3: 200 V if absolute moisture content is 18 g or more; 600 V (default) if others** **4: 200 V if absolute moisture content is 14 g or more; 600 V if others**
MODEL-SZ	
	Use it to switch the ADF original size detection mechanism and the default ratio display mechanism by country.
Setting	**0: AB (6R5E)** **1: INCH (5R4E)** **2: A (3R3E)** **3: AB/INCH (6R5E)**
FIX-TEMP	
	Use it to set the down sequence start temperature for thick paper mode.
Setting	**0: 194°C** **1: 189°C (default)** **2: 184°C**
IDL-MODE	
	Use it to set the developing assembly idle rotation mode. Memo Set it to 2 or 3 if the image is distorted or is too light.
Setting	**0: OFF (no idle rotation)** **1: auto control by environment sensor (default)** **2: start idle rotation when fixing roller reaches 100°C** **3: start idle rotation when main power switch is turned on**

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FUZZY	
	Use it to enable/disable fuzzy control and set the environment. • The change affects the current level of pre-transfer, transfer, and separation charging. • Setting it to 1 through 3 will make it independent of the environment sensor.
Setting	**0: Fuzzy control (default)** **1: low humidity environment mode (current level will be lower than standard)** **2: normal humidity environment mode** **3: high humidity environment mode (current level will be higher than standard)**
SCANSLCT	
	Use it to enable/disable the ADF original size detection mechanism. When enabled, it determines the scan size based on the original size.
Setting	**0: OFF (default)** **1: ON**
OHP-TEMP	
	Use it to set the transparency mode control temperature. To ensure separation of transparency from the fixing roller, control will be by a lower fixing temperature.
Setting	**0: 198°C (default)** **1: 193°C** **2: 188°C** **3: 183°C**
OHP-CNT	
	Use it to enable/disable the transparency mode potential control mechanism.
Setting	**0: use target value obtained by transparency mode potential control when in transparency mode (default)** **1: do not use potential control in transparency mode**
CNT-W/PR	
	Use it to enable/disable density variation mode during printing (PDL input).
Setting	**0: correct target value to enable variation of density during printing (default)** **1: do not vary density during printing**

COPIER>OPTION

FIX-TMP1	
	Use it to set a down sequence start temperature for plain paper.
	Memo If the user places priority on image quality, select '0'; on speed, select '2'.
Setting	**0: 183°C** **1: 178°C (default)** **2: 173°C**
TRSW-P-B	
	Use it to enable/disable transfer current output correction control at the trailing edge of paper.
Setting	**0: ON** **1: OFF (default)**
SP-MODE	
	Use it to turn on/off separation current output correction control.
Setting	**0: standard mode (default)** **1: low-voltage mode**
FTMP-DWN	
	Use it to select stacking enhancement mode.
	Memo The fixing temperature will be lowered to improve stacking performance in the finisher.
Setting	**0: OFF (default)** **1: lower by 5°C** **2: lower by 10°C** **3: lower by 15°C**
DRUM-CLN	
	Use it to select drum cleaning enhancement mode.
	Memo • During copying, the drum rotation is stopped for about 1 sec as soon as a specific number of sheets has been exceeded, thereby recovering the cleaning performance of the cleaning blade. • If a cleaning fault occurs, change the setting in this mode. • A higher setting provides stronger effects.
Setting	**0: 1000 single-sided copies (500 sheets*) (default)** **1: 500 single-sided copies (250 sheets*)** **2: 250 single-sided copies (125 sheets*)** **3: 1000 single-sided (500 sheets*) copies if absolute moisture content is 9 g or more; 250 single-sided (125 sheets*) copies if fewer** **4: do not stop rotation** **(*: Double-sided copying)**

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DRM-IDL	
	Use it to set idle rotation mode of the photosensitive drum at power-on. By initiating idle rotation of the photosensitive drum, fusion of toner to the drum may be avoided. Set it to 1 through 4 if the images are distorted or too light.
Setting	**0: do not execute idle rotation (default)** **1: execute idle rotation for 30 sec if absolute moisture content is 18 g or more** **2: execute idle rotation for 2 min if absolute moisture content is 18 g or more** **3: execute idle rotation for 30 sec regardless of environment** **4: execute idle rotation for 2 min regardless of environment**
FX-FANSW	
	Use it to switch fixing heat discharge fan control. Setting it to '1' will use half-speed control for the fan after copying/printing.
Setting	**0: Full speed (default)** **1: Half speed**
CONFIG	
	Use it to select multiple pieces of firmware stored on the hard disk to switch between countries, languages, destinations, and paper sizes.
Setting	**XXYYZZAA** **XX: country, YY: language, ZZ: destination, AA: paper size configuration. The mode of indication is as selected by COPIER>DISPLAY>USER>LANGUAGE.** <Using the Mode> 1) Select CONFIG. 2) Select the item to change to highlight, and press the +/- key. The items that may be changed are XX (00; country) and AA (00; paper size configuration). 3) See that each press on the +/- key changes the indications in sequence. 4) Bring up the appropriate description for all items, and press the OK key. 5) Turn off and then on the main power switch.
SHARP	
	Use it to change the sharpness level of the image. • A higher setting makes the image sharper.
Setting	**1 to 5 (default: 3)**
FDW-DLV	
	Use it to set face-down delivery for multiple-page printing.
Setting	**0: normal (face-up delivery for all if for single original)** **1: face-up delivery for one set of prints of single original; face-down delivery for multiple sets (default)**

COPIER>OPTION

COTDPC-D	
	Use it to set toner save mode.
Setting	**0: do not use toner save mode (default)** **1: VDT for copy image, -20 V; VDT-P for print image, -25 V (reduction target at -10%)** **2: VDT for copy image, -40 V; VDT-P for print image, -50 V (reduction target at -20%)** **3: VDT for copy image, -60 V; VDT-P for print image, -75 V (reduction target at -30%)**
RMT-LANG	
	Not used.
TR-SP-C1	
	Use it to change the transfer/separation output setting for pickup from the right deck (to deal with various problems).
Setting	**0: for plain paper (default)** **1: for re-cycled paper** **2: for tracing paper**
TR-SP-C2	
	Use it to change the transfer/separation output setting for pickup from the left deck (to deal with various problems).
Setting	**0: for plain paper (default)** **1: for re-cycled paper** **2: for tracing paper**
TR-SP-C3	
	Use it to change the transfer/separation output setting for pickup from cassette 3.
Setting	**0: for plan paper (default)** **1: for re-cycled paper** **2: for tracing paper**
TR-SP-C4	
	Use it to change the transfer/separation output setting for pickup from cassette 4 (to deal with various problems).
Setting	**0: for plain paper (default)** **1: for re-cycled paper** **2: for tracing paper**

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TR-SP-MF	
	Use it to change the transfer/separation output setting or pickup from the manual feed tray (to deal with various problems).
Setting	**0: For plain paper (default)** **1: re-cycled paper** **2: tracing paper**
TR-SP-DK	
	Use it to change the transfer/separation output setting for pickup from the side paper deck (to deal with various problems).
Setting	**0: for plain paper (default)** **1: for re-cycled paper** **2: for tracing paper**
DF-BLINE (iR8500)	
	Use it to enable/disable the dust detection mechanism in ADF stream reading mode.
Setting	**0: ON (default)** **1: OFF**
(iR7200)	
	Use it to turn on/off reduce mode (turning off edge emphasis) for black lines in stream reading mode. Turning on the mode will make black lines less noticeable, but the edges of images will accordingly be less sharp.
Setting	**0: OFF (default)** **1: ON**
THICK-PR	
	Use it to set potential control for thick paper mode.
Setting	**0: use value determined by potential control for plain paper mode (default)** **1: use value determined by potential control for transparency mode**
DEV-SLOW	
	Use it to change the speed of the developing sleeve.
Setting	**0: change to suit environment (default)** **1: fix to standard speed** **2: fix to low-speed**
TEMP-TBL	
	Use it to set the fixing control temperature.
Setting	**0: 198°C (default)** **1: 203°C** **2: 193°C** **3: 188°C** **4: 183°C**

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COPIER>OPTION

DRM-H-SW	
	Use it to set night drum heater OFF mode.
Setting	**0: night drum heater ON (default)** **1: monitor ambient humidity every 2 hr, and turn off drum heater if absolute moisture content is 9 g or less**
DEV-IDLR	
	power-on black band pre-development forced idle rotation mode
Setting	**0: at power-on, execute black band pre-development forced idle rotation sequence if 20,000 prints or more were made on previous day and, in addition, if absolute moisture content is 16 g or higher (default)** **1: at power-on, execute black band pre-development forced idle rotation sequence at all times**
BK-BD-1	
	Use it to set black band increase month mode (for January).
Setting	**0: do not execute if absolute moisture content is less than 9 g; execute black band sequence for every 200 prints if absolute moisture content is 9 g or more** **1: execute black band sequence for every 60 prints** **2: execute black band sequence for every 20 prints** **3: execute black band sequence for every 6 prints**
BK-BD-2	
	Use it to set black band increase month mode (for February).
Setting	**Same the setting of 'BK-BD-1'.**
BK-BD-3	
	Use it to set black band increase month mode (for March).
Setting	**Same the setting of 'BK-BD-1'.**
BK-BD-4	
	Use it to set black band increase month mode (for April).
Setting	**Same the setting of 'BK-BD-1'.**
BK-BD-5	
	Use it to set black band increase month mode (for May).
Setting	**Same the setting of 'BK-BD-1'.**
BK-BD-6	
	Use it to set black band increase month mode (for June).
Setting	**Same the setting of 'BK-BD-1'.**
BK-BD-7	
	Use it to set black band increase month mode (for July).
Setting	**Same the setting of 'BK-BD-1'.**

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BK-BD-8	
	Use it to set black band increase month mode (for August).
Setting	**Same the setting of 'BK-BD-1'.**
BK-BD-9	
	Use it to set black band increase month mode (for September).
Setting	**Same the setting of 'BK-BD-1'.**
BK-BD-10	
	Use it to set black band increase month mode (for October).
Setting	**Same the setting of 'BK-BD-1'.**
BK-BD-11	
	Use it to set black band increase month mode (for November).
Setting	**Same the setting of 'BK-BD-1'.**
BK-BD-12	
	Use it to set black band increase month mode (for December).
Setting	**Same the setting of 'BK-BD-1'.**
RUI-DISP	
	Use it to select the copier function for the RUI (designed to comply with disability support requirements).
Setting	**0: disable display of copy screen on RUI (default).** **1: enable display of copy screen on RUI.**
ORG-LGL	
	Use it to set the size of a special paper type not recognized by the feeder.
Setting	**0: LEGAL (default)** **1: FOOLSCAP** **2: M_OFFICIO** **3: A_FOOLSCAP** **4: FORIO** **5: G_LEGAL** **6: OFFICIO** **7: E_OFFICIO** **8: A_OFFICIO** **9: B_OFFICIO** **10: A_LEGAL**
ORG-LTR	
	Use it to set the size of a special paper type not recognized by the feeder.
Setting	**0: LTR (default)** **1: G_LTR** **2: EXECTIVE** **3: K_LGL** **4: A_LTR**

COPIER>OPTION
<USER>

Use it to set user-related machine settings.

COPY-LIM	
	Use it to change the upper limit imposed on the number of copies.
Setting	**1 to 999 (default: 999)**
SLEEP	
	Use it to enable/disable sleep mode.
Setting	**0: OFF** **1: ON (default)**
WEB-DISP	
	Set it to enable/disable the fixing web length warning message. Memo When disabled (no warning), the message will be indicated only when service mode is started.
Setting	**0: OFF (do not issue warning; default)** **1: ON (issue warning)**
SIZE-DET	
	Use it to enable/disable the original size detention mechanism.
Setting	**0: OFF (default)** **1: ON**
W-TONER	
	Use it to turn on/off the waste toner case full warning message. • When disabled (no warning), the message will be issued only when service mode is started.
Setting	**0: OFF (no warning; default)** **1: ON (issue warning)**
COUNTER1	
	Use it to indicate the type of soft counter 1 of the control panel.
Setting	**101: total 1 (default: fixed to 101; T00-205-01)** The type of soft counter 1 cannot be changed.
COUNTER2	
	Use it to change the type of soft counter 2 of the control panel to suit the needs of the user/dealer.
Setting	**000 to 804 (T00-205-01; default: 000 for 100V model, 103 for 208/230V model)**

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COUNTER3	
	Use it to change the type of soft counter 3 of the control panel to suit the needs of the user/dealer.
Setting	**000 to 804 (T00-205-01; default: 000 for 100V model, 201 for 208/230V model)**
COUNTER4	
	Use it to change the type of soft counter 4 of the control panel to suit the needs of the user/dealer.
Setting	**000 to 804 (T00-205-01; default: 000 for 100V model, 203 for 208/230V model)**
COUNTER5	
	Use it to change the type of soft counter 5 of the control panel to suit the needs of the user/dealer.
Setting	**000 to 804 (T00-205-01; default: 000)**
COUNTER6	
	Use it to change the type of soft counter 6 of the control panel to suit the needs of the user/dealer.
Setting	**000 to 804 (T00-205-01; default: 000)**
DATE-DSP	
	Use it to set the type of date notation. For the 208V model, default is '1'.
Setting	**0: YYYY MM/DD (default)** **1: DD/MM YYYY** **2: MM/DD/YYYY**
MB-CCV	
	Use it to set the box function based on the control card IV. (not used in the machine)
Setting	**0: in remote mode, enable operation and printing regardless of presence/operation of card and do not charge** **1: in remote mode, enable operation regardless of presence/absence of card; enable acceptance of print job, but stop printing in absence of card (in presence of card, enable printing and charge; default)** **2: in remote mode, do not enable operation; do not enable acceptance of print job**
PR-D-SEL	
	Use it to set the density of printing (PDL input).
Setting	**0 to 8 (4: default)** **0 (light) ↔ 4 (standard) ↔ 8 (dark)**

COPIER>OPTION

CONTROL	
	PDL count function (not used in the machine)
Setting	**0: do not count PDL output** **1: count PDL output if control card is connected**
B4-L-CNT	
	For soft counters 1 through 6, set B4 as large-size or small-size.
Setting	**0: count as small-size (default)** **1: count as large-size**
TRY-STP	
	Use it to prohibit suspension of printing in response to a limit in the number of sheets to staple or the presence of mixed sizes in the finisher.
Setting	**0: normal mode (suspend printing in response; default)** **1: suspend when height sensor (full stack) goes ON**
MF-LG-ST	
	Use it to indicate the Extra Length key for papers as long as 630 mm (manual feed; free size); for the ADF, up to 630 mm.
Setting	**0: normal mode (default)** **1: extra-length mode (indicate key)**
SPECK-DP	
	Use it to enable/disable the indication of the result of dust detection in stream reading mode.
Setting	**0: disable (default)** **1: enable**
CNT-DISP	
	Use it to enable/disable the indication of the serial number in response to a press on the Counter Check key.
Setting	**0: enable (default)** **1: disable**
PH-D-SEL	
	Use it to select the number of lines for photo mode.
Setting	**0: 141 lines (default)** **1: 134 lines**
COPY-JOB	
	Use it to enable/disable a copy job when a card reader or the coin vendor is used.
Setting	**0: copy job auto start enabled (default)** **1: copy job auto start disabled**

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PH-D-EL	
	Use it to select the number of lines for photo mode printing.
Setting	**0: 141 lines (default)** **1: 134 lines**
COPY-JOB	
	Use it to prevent auto copy start when a coin robot and a card reader.
Setting	**0: copy job auto start selected (default)** **1: copy job auto start not selected**
OP-SZ-DT (Indicated if iR7200)	
	Use it to turn on and off the original size detection mechanism in book mode.
Setting	**0: OFF (accepts input of original size from control panel; default)** **1: ON (detects original size automatically)**
NW-SCAN	
	use it to enable/disable the network scanning function. Memo • The setting cannot be changed for the 100V model. • For the 208/230V model, the setting can be changed; for the PS/PCL model, fixed to '1'.
Setting	**0: disable (default)** **1: enable**
INS-C/S	
	Use it to expand the inserter function.
Setting	**0: support cover only (default)** **1: support cover + interleaf (multi inserter)**
TBIC-RNK	
	Use it to reduce uneven intervals.
Setting	**1 to 5 (default: 1)**
ORG-ODR (Indicated if iR8500)	
	Use it to set the sequence of reading double-sided original when original orientation detection is enabled.
Setting	**0: read from back to face (default)** **1: read from face to back**

COPIER>OPTION

<Soft counter Specifications>

The soft counters are classified as follows:

100s:	total	500s:	scan
200s:	copy	600s:	box
300s:	print	700s:	received file
400s:	copy + print	800s:	report

- Guide to the Table -

- ◯: counter used by machine.
- 4C: full-color.
- mono: mono-color (Y, M, C/R, G, B/sepia mono).
- L: large-size (B4 or larger).
- S: small-size (smaller than B4).
- number (1, 2) under "Counter": count for large-size; may be changed in service mode so that B4 or larger may be counted as large-size (COPIER>OPTION>USER>B4-L-CNT).

Support	No.	Counter	Support	No.	Counter
◯	000	no indication	◯	206	copy A (total 2)
◯	101	total 1	◯	207	copy A (L)
◯	102	total 2	◯	208	copy A (S)
◯	103	total (L)	◯	209	local copy (total 1)
◯	104	total (S)	◯	210	local copy (total 2)
	105	total (4C1)	◯	211	local copy (L)
	106	total (4C2)	◯	212	local copy (S)
	107	total (mono)	◯	213	remote copy (total 1)
	108	total (Bk1)	◯	214	remote copy (total 2)
	109	total (Bk2)	◯	215	remote copy (L)
	110	total (mono/L)	◯	216	remote copy (S)
	111	total (mono/S)		217	copy (4C1)
	112	total (Bk/L)		218	copy (4C2)
	113	total (Bk/S)		219	copy (mono1)
◯	114	total		220	copy (mono2)
		(4C + mono + Bk/double-sided)		221	copy (Bk1)
		total 1 (double-sided)		222	copy (Bk2)
◯	115	total 2 (double-sided)		223	copy (4C/L)
◯	116	L (double-sided)		224	copy (4C/S)
◯	117	S (double-sided)		225	copy (mono/L)
◯	201	copy (total 1)		226	copy (mono/S)
◯	202	copy (total 2)		227	copy (Bk/L)
◯	203	copy (L)		228	copy (Bk/S)
◯	204	copy (S)		229	copy (4C + mono/L)
◯	205	copy A (total 1)		230	copy (4C + mono/S)

T00-205-01 (1/3)

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Support	No.	Counter	Support	No.	Counter
	231	copy (4C + mono/2)		401	copy + print (4C/L)
	232	copy (4C + mono/1)		402	copy + print (4C/S)
	233	copy (4C/L/double-sided)		403	copy + print (Bk/L)
	234	copy (4C/S/double-sided)		404	copy + print (Bk/S)
	235	copy (mono/L/double-sided)		405	copy + print (Bk2)
	236	copy (mono/S/double-sided)		406	copy + print (Bk1)
	237	copy (Bk/L/double-sided)		407	copy + print (4C + mono/L)
	238	copy (sided/S/double-sided)		408	copy + print (4C + mono/S)
○	301	print (total 1)		409	copy + print (4C + mono/2)
○	302	print (total 2)		410	copy + print (4C + mono/1)
○	303	print (L)		411	copy + print (L)
○	304	print (S)		412	copy + print (S)
○	305	print A (total 1)		413	copy + print (2)
○	306	print A (total 2)		414	copy + print (1)
○	307	print A (L)		501	scan (total 1)
○	308	print A (S)			copy scan (total/4)
	309	print (4C1)		502	scan (total 2)
	310	print (4C2)		503	scan (L)
	311	print (mono1)			copy scan (L/4)
	312	print (mono2)		504	scan (S)
	313	print (Bk1)			copy scan (S/4)
	314	print (Bk2)	○	505	Bk scan (total 1)
	315	print (4C/L)			copy scan (Bk)
	316	print (4C/S)	○	506	Bk scan (total 2)
	317	print (mono/L)	○	507	Bk scan (L)
	318	print (mono/S)			copy scan (Bk/L)
	319	print (Bk/L)	○	508	Bk scan (S)
	320	print (Bk/S)			copy scan (Bk/S)
	321	print (4C + mono/L)		509	color scan (total 1)
	322	print (4C + mono/S)			copy scan (4C)
	323	print (4C + mono/2)		510	color scan (total 2)
	324	print (4C + mono/1)		511	color scan (L)
	325	print (4C/L/double-sided)			copy scan (4C/L)
	326	print (mono/L/double-sided)		512	color scan (S)
	327	print (mono/L/double-sided)			copy scan (4C/S)
	328	print (mono/S/double-sided)		513	copy scan (L)
	329	print (Bk/L/double-sided)		514	copy scan (S)
	330	print (Bk/S/double-sided)		515	copy scan (total)
○	331	PDL print (total 1)	○	601	box print (total 1)
○	332	PDL print (total 2)	○	602	box print (total 2)
○	333	PDL print (L)	○	603	box print (L)
○	334	PDL print (S)	○	604	box print (S)

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COPIER>OPTION

Support	No.	Counter	Support	No.	Counter
○	701	received file print (total 1)	○	801	report print (total 1)
○	702	received file print (total 2)	○	802	report print (total 2)
○	703	received file print (L)	○	803	report print (L)
○	704	received file print (S)	○	804	report print (S)

T00-205-01 (3/3)

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<CST>

Use it to make cassette-related settings.

U1-NAME U2-NAME U3-NAME U4-NAME	
	Use it to enable/disable indication of paper notations when a paper size group (U1 through U4) is detected.
Setting	**0: OFF (on touch panel, 'U1' through 'U4'; default)** **1: ON (paper notations selected in CST-U1 through CST-U4)**
CST-U1	
	Use it to select the paper notation to be used by paper size group U1.
Setting	**22: K-LGL** **31: G-LTR (default)**
CST-U2	
	Use it to select the paper notation to be used by paper size group U2.
Setting	**24: FOOLSCAP (default)** **26: OFFICIO** **27: E-OFFI** **33: A-LGL** **36: A-OFI** **37: M-OFI**
CST-U3	
	Use it to select the paper notation to be used by paper size group U3.
Setting	**25: A-FLS** **34: G-LGL (default)** **35: FOLIO**
CST-U4	
	Use it to select the paper notation to be used by paper size group U4.
Setting	**18: LTR (default)** **29: A-LTR**
P-SZ-C1 P-SZ-C2	
	Use it to select a paper size for the front deck (C1: right deck, C2: left deck). After selecting a paper size, be sure to turn off and then on the main power switch.
Setting	**6: A4 (default)** **15: B5** **18: LTR**

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COPIER>OPTION
Codes and Paper Notations

Code	Abbreviation	Notation	Code	Abbreviation	Notation
01	A1	A1	22	K-LGL	Korean
02	A2	A2			GOVERNMENT
03	A3R	A3R	23	K-LGLR	Korean
04	A3	A3			GOVERNMENTR
05	A4R	A4R	24	FLSC	FOOLSCAP
06	A4	A4	25	A-FLS	Australian FOOLSCAP
07	A5	A5	26	OFI	OFFICIO
08	A5R	A5R	27	E-OFI	Ecuadorian OFFICIO
09	B1	B1	28	B-OFI	Bolivian OFFICIO
10	B2	B2	29	A-LTR	Argentine LETTER
11	B3	B3	30	A-LTRR	Argentine LETTERR
12	B4R	B4R	31	G-LTR	Government LETTER
13	B4	B4	32	G-LTRR	Government LETTERR
14	B5R	B5R	33	A-LGL	Argentine LEGAL
15	B5	B5	34	G-LGL	Government LEGAL
16	11x17	11x17	35	FOLI	FOLIO
17	LTRR	LETTERR	36	A-OFI	Argentine OFFICIO
18	LTR	LETTER	37	M-OFI	Mexican OFFICIO
19	STMT	STATEMENT	38		
20	STMTR	STATEMENTR	39		
21	LGL	LEGAL	40	ALL	

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<ACC>

Use it to set accessory-related machine settings.

COIN	
	Use it to enable/disable coin vendor indication (not used in the machine).
	Memo The Control Card Set notation indicated in the control panel will be replaced by the Coin Vendor notation.
Setting	**0: OFF (default)**
	1: ON
DK-P	
	Use it to select the paper size to be used by the side paper deck.
Setting	**0: A4 (default)**
	1: B5
	2: LTR

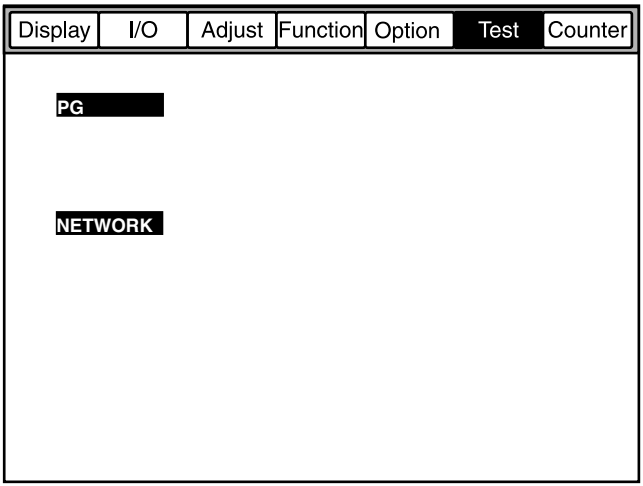
<INT-FACE>

Use it to set conditions for connection of an external controller.

IMG-CONT	
	Use it to set the eternal controller detecting switch.
Setting	**0: external controller absent (default)**
	1: external controller prevent
	2: reserved for future

2.6 TEST

The following screen appears in response to COPIER>TEST:



F00-206-01

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<PG>

Use it to select a type of test print and generate a print.

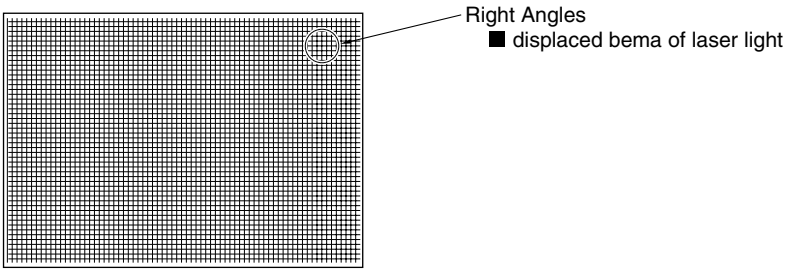
TYPE	Use it to enter the type number of the test print to use, and press the Start key to generate it.
Setting	**0: normal print** **1 to 9: See T00-206-01.**
TXPH	Use it to switch between text mode and photo mode for test printing.
Setting	**0: text mode** **1: photo mode**
PG-PICK	Use it to select the source of paper for test printing.
Setting	**1: right deck (default)** **2: left deck** **3: cassette 3** **4: cassette 4** **5 to 6: not used** **7: side deck** **8: manual feed**

<Type Input Numbers and Test Prints>

Input No.	Description	Input No.	Description
0	image from CCD (normal printing)	4	blank
1	grid	5	halftone
2	17-gradation (with image correction)	6	solid black
3	17-gradation (without image correction)	7	vertical straight lines
		8	horizontal straight lines
		9	halftone (for laser delay check)

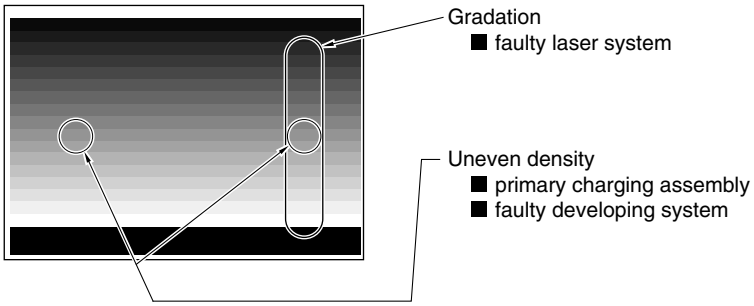
T00-206-01

COPIER>TEST
1 Grid (PG-TYPE1)



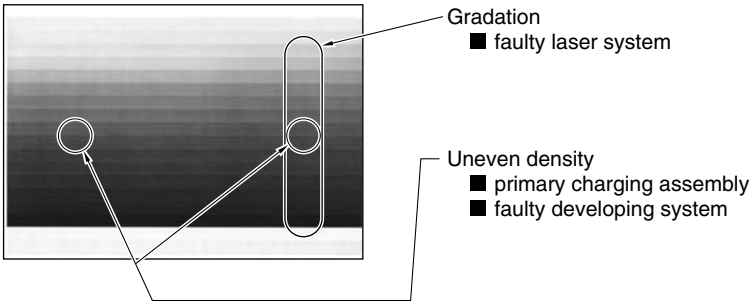
F00-206-02

2 17-Gradation (with image correction; PG-TYPE2)



F00-206-03

3 17-Gradation (without image correction; PG-TYPE3)



F00-206-04

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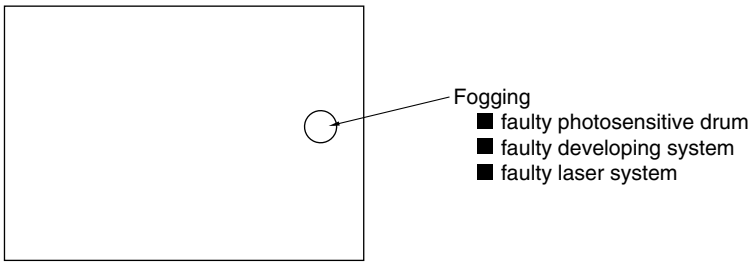
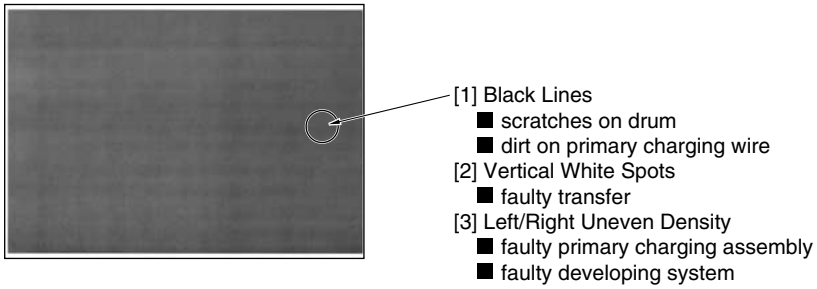
4 Blank (PG-TYPE4)



F00-206-05

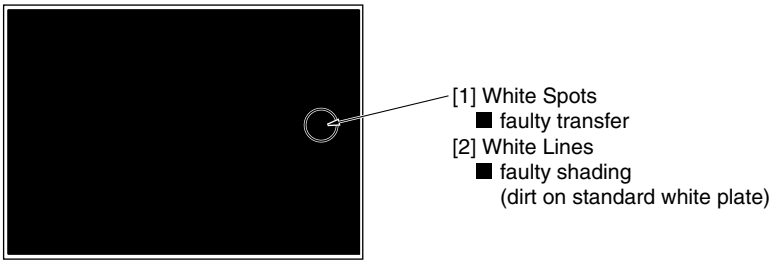
5 Halftone (PG-TYPE5)

■ Halftone Processed by the Density Correction Block (image processing)
In addition to the level of performance of the image formation system, it also depends on the density correction mechanism (e.g., AE).



F00-206-06

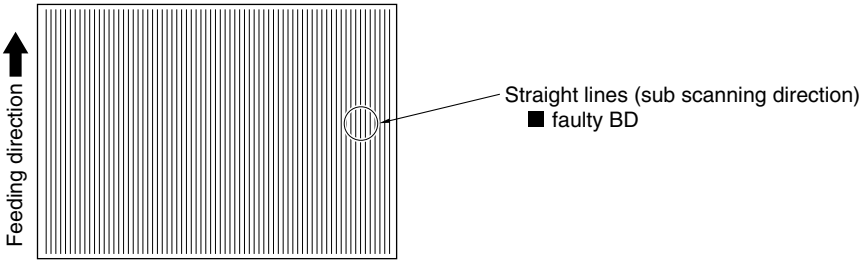
6 Solid Black (PG-TYPE6)



F00-206-07

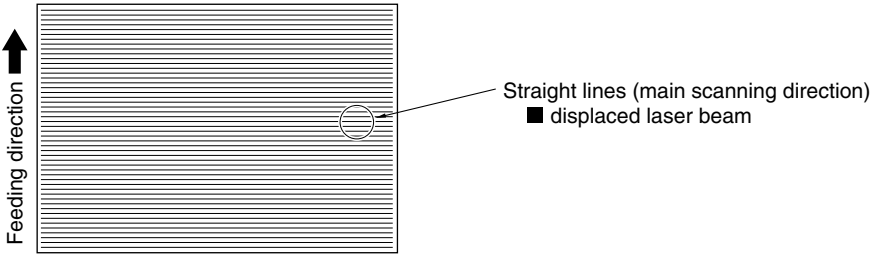
COPIER>TEST

7 Vertical lines (PG-TYPE7)



F00-206-08

8 Horizontal Lines (PG-TYPE8)



F00-206-09

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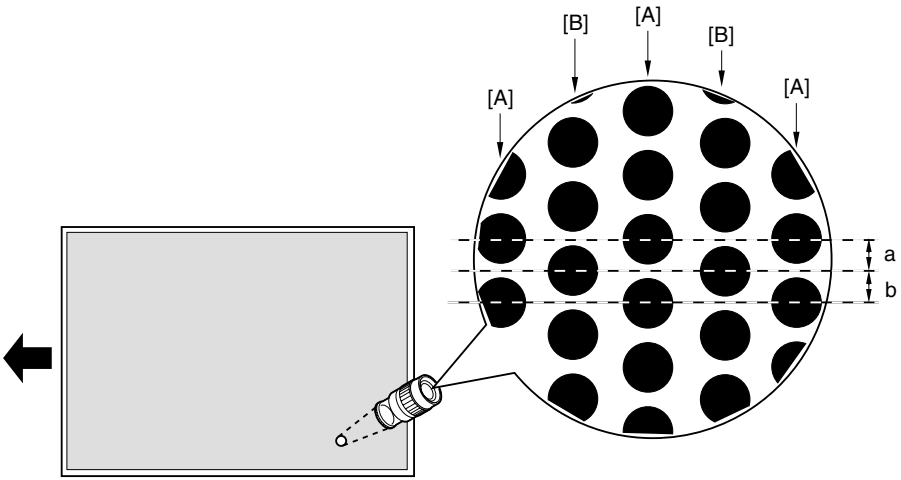
9 Halftone (for laser delay check; PG-TYPE9)

[A] laser A scanning line
[B] laser B scanning line



F00-206-10

Memo

Checking for a Laser Delay

Use a magnifying glass (CK-0056-000) to make sure that the distance between a and b in the figure is a specific distance; otherwise, try changing the setting under COPIER>ADJUST>LASER>DLY-FINE.

- COPIER>ADJUST>LASER>DLY-FINE
  Range of adjustment: -16 to 16 ('1' being a 1/16 pixel; 1 pixel being the sum length of a band b)

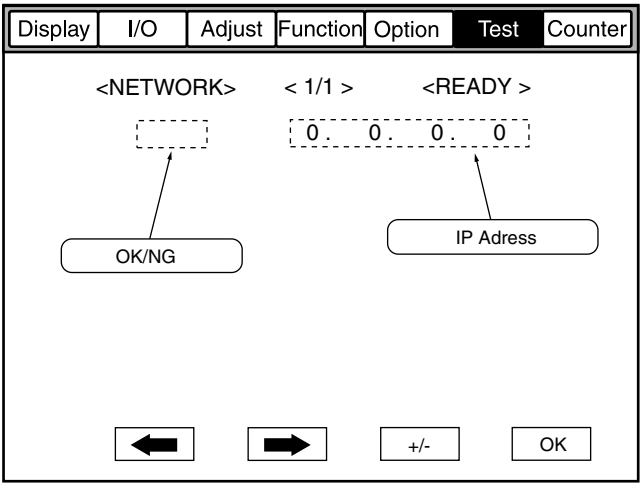
COPIER>TEST
<NETWORK>

Use it to check network-related connections.

PING

Use it to check the connection of the machine and the network (only when TCP/IP is in use).

Use it to check the connection to the network at time of installation or when a fault occurs.



F00-206-11

<Using the Mode>

• At Time of Installation or a Connection Fault

1) Turn off the main power switch.
2) Connect the network cable to the machine, and turn on the main power switch.
3) Inform the user's system administrator that the machine has been installed, and ask him/her to make network settings.
4) Inform the user's system administrator that a check will be made on the network connection, and find out the remote host address (IP address of the PC terminal on the user's network) for a PING command.
5) Make the following selections in service mode: COPIER>TEST> NETWORK>PING. Then, enter the IP address found in step 4); press the OK key, and then press the Start key.

• If the connection to the network is normal, 'OK' will be indicated (End the work).

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- If 'NG' is indicated, check the connection of the network cable; if normal, go step 6).
  If a fault is found in the connection of the network cable, correct the connection, and go to step 5) once again.

6) Make the following selections in service mode: COPIER>TEST> NETWORK>PING. Enter the loop-back address* (127.0.0.1); press the OK key, and then press the Start key.

- If 'NG' is indicated, suspect a fault in the TCP/IP setting of the machine. Go back to step 3), and check the setting.
- If 'OK' is indicated, the TCP/IP setting may be assumed to be free of a fault. However, suspect a fault in the connection of the network interface board (NIC) or the NIC itself; go to step 7) to make a check.

* The signal will be returned in front of the NIC, enabling a check on the TCP/IP setting of the machine.

7) Make the following selections in service mode: COPIER>TEST>NETWORK>PING; then, enter the local host address (IP address of the machine), and press the OK key.

- If 'NG' is indicated, suspect a fault in the connection of the NIC or the NIC itself. Check the connection of the NIC, or replace it.
- If 'OK' is indicated, the network setting of the machine and the NIC may be assumed to be free of a fault. However, suspect a fault in the user's network environment; report to the system administrator, and ask to remove the fault.

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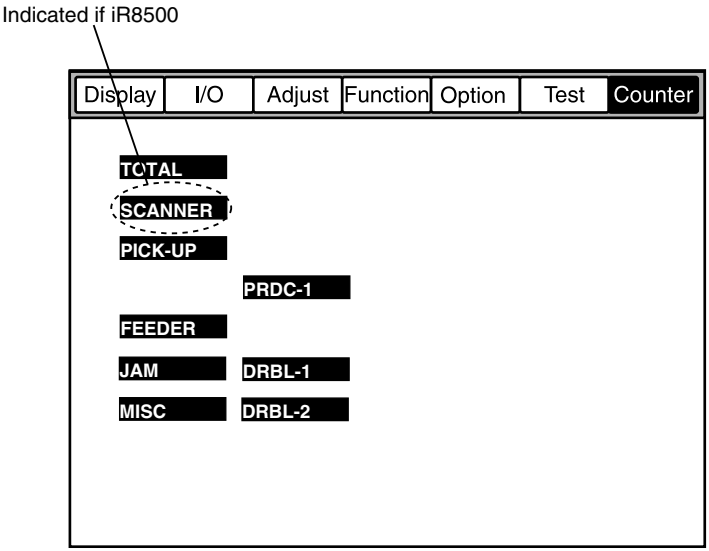
2.7 COUNTER

The following screen appears in response to COPIER>COUNTER:



F00-207-01

<Clearing the Counter Reading>

1) Select the item to clear so that it is highlighted.
2) Press the Clear key in the control panel.
   • The counter will be cleared to '00000000'.

<Grouping of Paper Sizes (small and large)>

Large (L): papers larger than A4/LTR
Small (S): papers equal to or smaller than A4/LTR

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<Guide to the Counters for Periodically Replaced Parts/Durables>

The machine is equipped with a counter for periodically replaced parts/durables (PRDC-1/DRBL-1/DRBL-2) to provide estimates for replacement.

<EX.>

PRM-WIRE / 00000027 / 00500000 / 0% !! 000082
[1] [2] [3] [4] [5] [6]

[1] part name; in the example, primary charging wire.
[2] counter reading (actual number of prints); the item may be selected, and the reading may be cleared using the Clear key.
[3] indicates the limit (number of prints until replacement); the item may be selected, and the reading may be changed using the keypad.
[4] indicates ratio in relation to the limit to the counter reading.
[5] indicate ratio range; one exclamation symbol (!) for range between 90% and 100% and two for 100% or higher; in the example, no indication.
[6] indicatesestimated number of days until replacement; in the example, 82 days.

List of COUNTER Items

Level 1: COUNTER		**Mode**
Level 2: TOTAL		
Level 3:	SERVICE1	total counter 1 for service
	SERVICE2	total counter 2 for service
	COPY	copy counter
	PDL-PRT	PDL print counter
	RMT-PRT	remote copy/print counter
	BOX-PRT	Box print counter
	RPT-PRT	report print counter
	2-SIDE	double-sided print counter
	SCAN	scan counter
Level 2: SCANNER (iR8500)		
Level 3:	SC-TTL	total scan counter for scanner
	SC-STRM	scanner stream reading counter
	SC-NRM	scanner fixed reading counter
Level 2: PICK-UP		
Level 3:	C1	right deck pickup counter
	C2	left deck pickup counter
	C3	cassette 3 pickup counter
	C4	cassette 4 pickup counter
	MF	manual feed tray pickup counter
	DK	side paper deck pickup counter
	2-SIDE	double-sided 2nd side pickup counter
Level 2: FEEDER		
Level 3:	FEED	feeder pickup total counter

COPIER>COUNTER

(iR8500)

	L-FEED	large-size original feed pickup total counter
	S-FEED	small-size original feed pickup total counter
	TTL-MF	manual feed pickup total counter
Level 2: JAM		
Level 3:	TOTAL	copier total jam counter
	FEEDER	feeder (ADF) jam counter
	SORTER	sorter (finisher) jam counter
	2-SIDE	duplex assembly jam counter
	MF	manual feed tray jam counter
	C1	right deck jam country
	C2	left deck jam counter
	C3	cassette 3 jam counter
	C4	cassette 4 jam counter
	Dk	side paper deck jam counter
Level 2: MISC		
Level 3:	FIX-WEB	fixing web counter (Be user to clear the reading after replacing the fixing web.)
	WST-TNR	waste toner counter (Be sure to clear the reading after disposing of the waste toner.)

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Level 2: PRDC-1

Level 3:	PRM-WIRE	primary charging wire counter
	PRM-GRID	primary grid wire counter
	PO-WIRE	pre-transfer charging wire counter
	TR-WIRE	transfer charging wire counter
	PRM-CLN	primary charging wire cleaner counter
	TR-CLN	transfer charging wire cleaner counter
	PO-CLN	pre-transfer charging wire cleaner counter
	FIX-TH1	fixing main thermistor (TH1) counter
	FIX-TH2	fixing sub thermistor (TH2) counter
	FX-TSW	fixing thermal switch (TP1) counter
	OZ-FIL1	ozone filter counter
	AR-FIL1	air filter counter

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COPIER>COUNTER

Level 2: DRBL-1

Level 3:		
	SCN-LMP	scanning lamp ON counter (in sec) (iR8500)
	PRE-LMP	pre-exposure lamp ON counter
	LSR-DRV	laser drive counter
	LSR-MTR	laser scanner motor counter
	LSR-FAN	laser scanner motor fan counter
	LSR-FAN	laser scanner fan counter
	SC-M-FAN	scanner motor cooling fan counter (iR8500)
	STRM-FAN	stream reading fan counter (iR8500)
	LSR-FAN2	laser diver cooling fan counter
	SCN-MTR	scanner motor counter (iR8500)
	PRM-UNIT	primary charging assembly counter
	PRM-FAN	primary charging assembly fan counter
	PO-UNIT	pre-transfer charging assembly counter
	POST-FAN	pre-transfer charging assembly fan counter
	PO-SCRPR	pre-transfer charging assembly scraper counter
	TR-UNIT	transfer charging assembly counter
	SP-FAN	separation fan counter
	P-TR-EXP	pre-transfer exposure lamp counter
	DRM-MTR	drum motor counter
	DRM-FAN	drum fan counter
	CLN-BLD	cleaner blade counter
	SP-CLAW	cleaner separation claw counter
	DVG-CYL	developing cylinder counter
	DVG-ROLL	developing assembly roller counter
	TNR-F-CL	developing assembly magnet roller clutch counter
	DEV-1CL	developing cylinder clutch counter
	DEV-2CL	developing cylinder deceleration clutch counter
	TNR-FD-M	toner feed motor counter
	C3-PU-RL	cassette 3 pickup roller counter
	C3-SP-RL	cassette 3 separation roller counter
	C3-PU-CL	cassette 3 pickup clutch counter
	C4-PU-RL	cassette 4 pickup roller counter
	C4-SP-RL	cassette 4 separation roller counter
	C4-PU-CL	cassette 4 pickup clutch counter
	LD-PU-RL	left deck pickup roller counter
	LD-SP-RL	left deck separation roller counter
	LD-PU-CL	left deck pickup clutch counter
	RD-SP-RL	right deck separation roller counter
	RD-PU-CL	right deck pickup clutch counter
	RD-PU-RL	right deck feed roller counter
	M-PU-RL	manual feed tray pickup roller counter
	M-SP-RL	manual feed tray separation roller counter
	M-PU-CL	manual feed tray pickup clutch counter

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PICK-MTR	pickup motor counter
REG-CL	registration clutch counter
VP1-CL	vertical path 1 clutch counter
VP2-CL	vertical path 2 clutch counter
FEED-FAN	feed fan counter
LD-PL-CL	left deck feed clutch counter
RD-PL-CL	right deck feed clutch counter
C3-PL-CL	cassette 3 feed clutch counter
C4-PL-CL	cassette 4 feed clutch counter
M-PL-CL	manual feed tray pickup clutch counter
FEED-MTR	feed motor counter
REG-B-CL	pre-registration clutch counter
P-R-B-CL	pre-registration brake clutch counter
DL-SW-CL	delivery speed switch clutch counter
C4-PU-CL	cassette 4 pickup solenoid counter
C3-PU-SL	cassette 3 pickup solenoid counter
LD-PU-SL	left deck pickup solenoid counter
RD-PU-SL	right deck pickup solenoid counter
M-PU-SL	manual feed tray pickup solenoid counter
RV-FP-SL	reversal paper solenoid counter
DUP-R-CL	lower feed right clutch counter
DUP-C-CL	lower feed middle clutch counter
DUP-RV-M	duplex reversal motor counter
DUP-FD-M	duplex feed motor counter
FX-UP-RL	fixing upper roller counter
FX-LW-RL	fixing lower roller counter
FX-MTR	fixing motor counter
FHTR-M	fixing main heater counter
FHTR-S	fixing sub heater counter
FX-IN-BS	fixing insulating bush counter
FX-FAN	fixing fan counter
FIX-WEB	fixing web counter
FX-BRG-U	fixing upper bearing counter
FX-BRG-L	fixing lower bearing counter
DLV-UCLW	delivery upper separation claw counter
DLV-LCLW	delivery lower separation claw counter
CURL-FAN	curl reducing fan counter
DEV-FAN	developing fan counter
DV-FP-SL	paper solenoid counter
DLV-FAN	delivery anti-adhesion fan counter
PWS-FAN	power supply fan counter
INV-FAN	inverter cooling fan counter (iR8500)

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COPIER>COUNTER

Level 2: DRBL-2

Level 3:	DF-PU-RL	ADF pickup roller counter
	DF-SP-PL	ADF separation plate counter (iR7200)
	DF-SP-PD	ADF sepatation pad counter (iR7200)
	DF-FD-RL	ADF feed roller counter
	LNT-TAPE	ADF dust-collecting tape counter (iR7200)
	PD-PU-RL	side paper deck pickup roller counter
	PD-SP-RL	side paper deck separation roller counter
	PD-PU-CL	side paper deck pickup clutch counter
	PD-PL-CL	side paper deck feed clutch counter
	PD-PU-MR	side paper deck pickup motor counter
	PD-PU-SL	side paper deck pickup solenoid counter
	NON-SORT	non-sort path counter
	SORT	sort path counter
	FIN-STPR	finisher staple counter
	SADDLE	saddle counter
	FOLD	folder path counter
	SDL-STPL	saddle staple counter
	PUNCH	punch counter
	INSERTER	inserter counter
	U-L-PTH1	finisher upper/lower path counter 1
	U-L-PTH2	finisher upper/lower path counter 2
	SORT-2	finisher lower path counter
	INSRTR2	finisher inserter 2 counter
	STCK	finisher stack processing counter
	SDL-STCK	finisher saddle stack processing counter

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3 FEEDER

3.1 DISPLAY

FEEDSIZE	Use it to indicate the size of the original detected by the ADF.

3.2 ADJUST

DOCST

Use it to adjust the stopped position of original for pickup from the ADF (original tray).

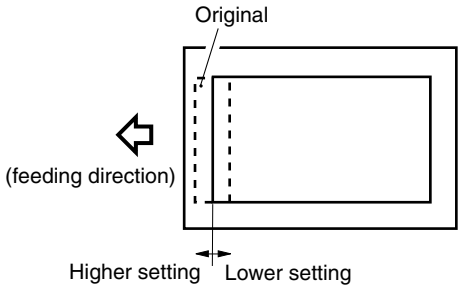
Memo • A higher setting decreases the leading edge margin.
• The data is stored on the ADF controller PCB.

Range of adjustment

(iR8500)
-30 to 30 (1 being equal to 0.5 mm)
<Using the Mode>
1) Place an original in the original tray.
2) Select the item, and change the setting; then, press the OK key.
3) Press the OK key so that the original will be picked up.
4) Open the ADF, and check the original stop position.
5) Press the OK key so that the original will be delivered.

Range of adjustment

(iR7200)
-10 to 10 (1 being equal to 0.5 mm)
<Using the Mode>
1) Make a print of the test chart, and check the position of the image.
2) Select the mode item, and change the setting to make adjustments.
3) Press the OK key.
4) Make a print of the test chart once again, and check to see the position of the image is as indicated.



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FEEDER>ADJUST

DOCST-M (Indicated if iR8500)

Use it to adjust the stopped position of original for pickup from the ADF (manual feed tray).

Range of adjustment

-30 to 30 (1 being equal to 0.5 mm)
To use, see the descriptions under FEEDER>ADJUST>DOCST.

LA-SPEED

Use it to adjust the original feed speed when the ADF is used in stream reading mode.

- A higher setting increases the speed.
- The data is stored on the ADF controller PCB.

Range of adjustment

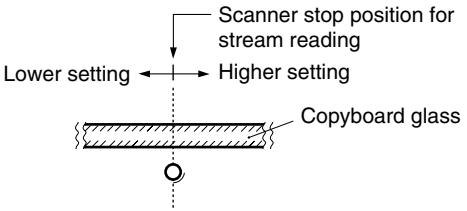
-30 to 30 (1 being equal to 0.1%)

STRD-S (Indicated if iR8500)

Use it to adjust the scanner stop position in stream reading mode (small-size)

Range of adjustment

-25 to 25 (1 being equal to 0.1 mm)



F00-302-02

STRD-L (Indicated if iR8500)

Use it to adjust the scanner stop position for stream reading mode (large-size).

Range of adjustment

-25 to 25 (1 being equal to 0.1 mm)
To use, see the descriptions under FEEDER>ADJUST>STRD-S.

RVM-SPD (Indicated if iR8500)

Use it to adjust the speed of the reversal motor.

A higher setting increases the speed.

Range of adjustment

-30- to 30 (1 being equal to 0.1%)

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3.3 FUNCTION

SENS-INT	Use it to adjust the sensitivity of each sensor of the ADF. Be sure to clean the sensor before executing the mode. <Using the Mode> 1) Select the item, and press the OK key. 2) See that the machine stops automatically after making adjustments.
BLT-CLN (Indicated if iR8500)	Use it to clean the separation belt of the ADF. <Using the Mode> 1) Select the item, and press the OK key. 2) See that the separation belt goes ON. Press the Stop key to stop it.
REG-CLN (Indicated if iR8500)	Use it to clean the registration roller of the ADF. <Using the Mode> 1) Select the item, and press the OK key. 2) See that the registration roller starts to rotate. Press the Stop key to stop it.

FEEDER>OPTION

3.4 OPTION

DOC-F-SW (Indicated if iR8500)

Use it to enable/disable stream reading mode.

Setting

0: enable stream reading (default)

1: enable stream reading for small size

2: disable stream reading

SIZE-SW

Use it to enable/disable mixed size detection of originals of AB and Inch sizes.

Setting

0: disable mixed size detection (default)

1: enable mixed size detection

Memo The detecting mechanism is enabled only when '3: AB/INCH' is selected in service mode: COPIER>OPTION>BODY>MODEL-SZ.

SLW-SPRT (Indicated if iR8500)

Use it to decrease the separation speed for original pickup.

Setting

0: normal mode (default)

1: deceleration move

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4 SORTER

4.1 ADJUST

PNCH-HLE

Use it to adjust the punch hole position (in paper feed direction) when the puncher unit is in use.

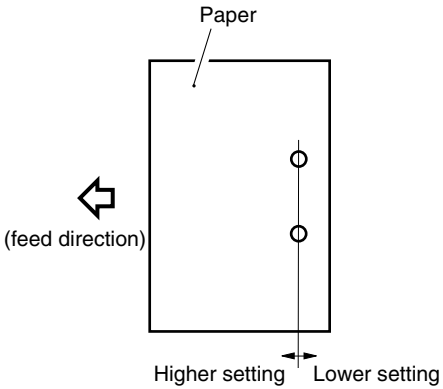
Memo A higher setting shifts the punch hole toward the leading edge (paper middle).

Range of adjustment

-23 to 23 (1 being equal to about 0.5 mm)

<Using the Mode>

1) Make a print of the Test Chart, and check the hole position.
2) Select the item, and charge the setting to adjust.
3) Press the OK key.
4) Make a test print of the Test Chart, and check to make sure that the hole position is as indicated.



F00-401-01

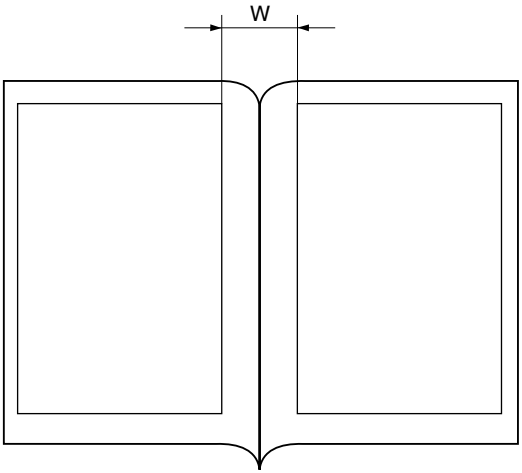
SORTER>OPTION
4.2 OPTION

BLNK-SW

Use it to set the margin width (W) on both sides of the fold when the saddle stitcher is used.

Setting

0: normal width (5 mm; default)
1: large width (10 mm)



F00-402-01

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5 BOARD

5.1 OPTION

MENU-1	
	Use it to indicate Level 1 of the printer setting menu.
Setting	**0: do not indicate (default)** **1: indicate**
MENU-2	
	Use it to indicate Level 2 of the printer setting menu.
Setting	**0: do not indicate (default)** **1: indicate**
MENU-3	
	Use it to indicate Level 3 of the printer setting menu.
Setting	**0: do not indicate (default)** **1: indicate**
MENU-4	
	Use it to indicate Level 4 of the printer setting menu.
Setting	**0: do not indicate (default)** **1: indicate**
PCI1-OFF	
	Use it to disable the function of slot 1 when the board fitted to slot 1 of the PCI is faulty.
Setting	**0: normal (default)** **1: OFF (disable board function)**
PCI2-OFF	
	Use it to disable the function of slot 2 when the board fitted to slot 2 of the PCI is faulty.
Setting	**0: normal (default)** **1: OFF (disable board function)**
PCI3-OFF	
	Use it to disable the function of slot 3 when the board fitted to slot 3 for the PCI is faulty.
Setting	**0: normal (default)** **1: OFF (disable board function)**

Error Code

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1 Error Codes

1.1 Introduction

The CPUs of the machine's main controller PCB, DC controller PCB, and reader controller PCB are equipped with a mechanism to check the condition of the machine (especially the condition of sensors); it runs a check as needed, and will indicate an error in the control panel upon detention.

The tables that follow indicate the nature and the timing of detection of each error; the codes within the tables are detail codes* used to provide detailed descriptions of codes.

*May be checked in service mode: COPIER>DISPLAY>JAM/ERR.

The error codes are classified as follows according to the machines they relate to:

E000 to E399	codes relating to the copier.
E400 to E499	codes relating to the feeder.
E500 to E514	codes relating to the finisher.
E515	codes relating to the inserter.
E518	codes relating to the paper folding unit.
E530 to E595	codes relating to the finisher.
E5F0 to E5F9	codes relating to the saddle stitcher.
E601 to E830	codes relating to the copier.

1. If an error is detected, the machine may be reset by turning it off and then on; this, however, does not apply to E000, E001, E002, E003, E004, E005, E013, E020, or E717, preventing the user from casually resetting the machine when the fault is serious (e.g., melting of the thermistor; otherwise, the fixing heater would overheat or toner would flow out of the hopper; not applicable to E717).
   If a fault is identified as E000 through E003, the power switch will au tomatically go off in 30 secs if it is turned on. In the case of E004, E000 will be indicated and the power switch will go off in about 3 secs. You must clear the data in RAM on the DC controller for E000, E001, E002, E003, E004, E005, E013, E020, or E717.
2. If the ADF's self diagnostic mechanism has gone ON, the error may be cleared by turning off and then on the host machine.
   While the ADF remains out of order, disconnect its lattice connector, and place the original on the copyboard glass to continue making prints.

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<Clearing an Error>

1) Execute the following in service mode: COPIER>FUNCTION>CLEAR>ERR.
2) Press the Reset key twice to return to the Copy Mode screen.
3) Turn off and then on the main power switch.

• Copier (E000 to E399)

E000

Main cause	The main thermistor (TH1) has poor contact or an open circuit. The thermal switch (TP1) has an open circuit. The fixing heater has an open circuit. The SSR is faulty. The DC controller is faulty.
Condition	0000 The reading of the main thermistor does not reach 70°C 3 mins 30 secs after the main power switch is turned on.
Caution	You must clear the error in service mode: COPIER>FUNCTION>CLEAR>ERR.

E001

Main cause	The main thermistor (TH1) has a short circuit. the sub thermistor (TH2) has detected overheating. The SSR is faulty. The DC controller PCB is faulty.
Condition	0001 A fault is detected (hardware port). 0002 The reading of the main thermistor or the sub thermistor is 230°C or higher for 2 secs. 0003 The reading of the main thermistor is higher than that of the sub thermistor by 50°C for 1 sec. 0004 The reading of the main thermistor is lower than that of the sub thermistor by 50°C for 1 sec.
Caution	You must clear the error in service mode: COPIER>FUNCTION>CLEAR>ERR.

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E002

Main cause	The main thermistor (TH1) has poor contact or an open circuit. The thermal (TP1) has an open circuit. The fixing heater has an open circuit. The SSR is faulty. The DC controller is faulty.
Condition	0000 After the reading of the thermistor (TH1) exceeds 70°C, it does not reach 100°C within 2 mins 30 secs. 0001 After the reading of the main thermistor exceeds 100°C, it does not reach 150°C within 2 mins 30 secs.
Caution	You must clear the error in service mode: COPIER>FUNCTION>CLEAR>ERR.

E003

Main cause	The main thermistor (TH1) has poor contact or an open circuit. The thermal switch (TP1) has an open circuit. The SSR is faulty. The DC controller PCB is faulty.
Condition	0000 The reading of the main thermistor is 70°C or lower for 2 secs or more after it reaches 100°C.
Caution	You must clear the error in service mode: COPIER>FUNCTION>CLEAR>ERR.

E004

Main cause	The SSR has a short circuit. The DC controller PCB is faulty.
Condition	0000 A short circuit occurs in the SSR used to drive the fixing heater (hard circuit detection).
Caution	You must clear the error in service mode: COPIER>FUNCTION>CLEAR>ERR.

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E005

Main cause: The fixing web has been taken up. The fixing web length sensor (PS7) is faulty. the DC controller is faulty.

Condition:

0000 The length of the fixing web that has been taken up exceeds a specific value, and the fixing web length sensor (PS7) detects the absence of the web for 5 secs or more.

Caution: You must replace the fixing web, and clear the two web counters in service mode: COPIER>COUNTER>MISC>FIX-WEB and COPIER> COUNTER>DRBL-1>FIX-WEB.

E010

Main cause: The main motor (M1) is faulty. The DC controller PCB is faulty.

Condition:

0000 Clock pulses do not arrive for 2 secs or more after the main motor drive signal is generated.

E012

Main cause: The drum motor (M0) is faulty. The DC controller PCB is faulty.

Condition:

0000 Clock pulses do not arrive for 2 secs or more after the drum motor drive signal is generated.

E013

Main cause: The waste toner feedscrew is faulty. The waste toner clog detecting switch (MSW2) is faulty. The DC controller PCB is faulty.

Condition:

0000 The waste toner feedscrew cannot rotate, and the switch (MSW2) is pushed multiple times within a specific period of time.

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E014

Main cause: The fixing motor (M3) is faulty. The DC controller PCB is faulty.

Condition:

0000 The motor clock signal cannot be detected for 2 secs or more continuously after the fixing motor drive signal is generated.

E015

Main cause: The pickup motor (M2) is faulty. The DC controller PCB is faulty.

Condition:

0000 The motor clock signal cannot be detected for 2 secs or more continuously after the pickup motor drive signal is generated.

E019

Main cause: The waste toner case is full. The waste toner case full sensor (PS19) is faulty. The DC controller PCB is faulty.

Condition:

0000 The machine is used to make more prints than allowed without disposing of waste toner after a waste toner full condition (indicated by a message) is detected.

E020

Main cause: The hopper connector is disconnected. The toner feed motor (M18) inside the hopper is faulty. The magnet roller drive clutch (CL1) inside the hopper is faulty. The toner sensor (TS3) inside the developing assembly is faulty. The DC controller PCB is faulty.

Condition:

0000 The absence of toner inside the developing assembly is detected for 3 secs or more although toner is supplied to the developing assembly.

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E025

Main cause: The toner feed motor (M6) inside the cartridge is faulty. The DC controller PCB is faulty.

Condition:

0000 An overcurrent flows for 10 secs or more twice to the toner feed motor (M6) inside the cartridge (detected by the DC controller PCB; upon detection for the first time, it indicates the message "Shake Toner Bottle and Set").

E032

Main cause: The copy data controller/NE controller is faulty. The main controller PCB is faulty.

Condition:

0000 The copy data controller/NE controller is disconnected (after it has been connected once).

E043

Main cause: The side paper deck main motor (M101) is faulty. The side deck driver PCB is faulty. The DC controller PCB is faulty.

Condition:

0000 The PLL lock signal (DMPLK) does not arrive for 2 secs after the side paper deck main motor drive signal is generated.

E051

Main cause: The horizontal registration sensor (PS18) is faulty. The horizontal registration motor (M15) is faulty. The DC controller PCB is faulty.

Condition:

0000 The home position signal is not detected within 5 secs while the horizontal registration motor (M15) drive signal is generated.

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E065

Main cause: The primary charging assembly, HV-DC PCB, or wiring is faulty (short circuit, open circuit).

Condition:

0000 A fault (leakage) in high-voltage output to the primary charging assembly is detected.

E067

Main cause: The HV-DC PCB is faulty. The HV-AC PCB is faulty. The wiring is faulty (short circuit, open circuit).

Condition:

0000 A fault is detected in two of the following: primary high voltage, pre-transfer high voltage, transfer high voltage, and separation high voltage. Or, a fault (leakage) in high-voltage output to the separation charging assembly is detected.

E068

Main cause: The HV-DC PCB is faulty. The HV-AC PCB is faulty. The separation charging assembly is faulty. The wiring is faulty (short circuit, open circuit).

Condition:

0000 A fault (leakage) in high-voltage output to the separation charging assembly is detected.

E069

Main cause: The HV-DC PCB is faulty. The HV-AC PCB is faulty. The transfer charging assembly is faulty. The wiring is faulty (short circuit, open circuit).

Condition:

0000 A fault (leakage) in the high-voltage output to the transfer charging assembly is detected.

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E100

Main cause: The BD PCB is faulty. The DC controller PCB is faulty. The laser unit is faulty. The laser driver PCB 1 is faulty. The laser diver PCB 2 is faulty. The wiring is faulty (short circuit, open circuit).

Condition:

0000 The BD signal does not arrive within 1 sec after the laser drive signal is generated. Or, the BD signal does not arrive for 1 sec or more while the laser is ON.

E110

Main cause: The laser scanner motor (M4) is faulty. The laser scanner motor driver PCB is faulty. The wiring is faulty (short circuit, open circuit). The DC controller PCB is faulty.

Condition:

0000 The constant rotation signal (LM-RDY) does not arrive for 15 sec or more after the laser scanner motor (M4) drive signal is generated.

E111

Main cause: The laser scanner motor cooling fan (FM14) is faulty. The DC controller PCB is faulty. The wiring is faulty (short circuit, open circuit).

Condition:

0000 The lock signal arrives for 5 secs or more although the laser scanner motor cooling fan (FM14) is driven.

E121

Main cause: The laser scanner cooling fan (FM3) or the laser diver cooling fan (FM5) is faulty. The DC controller PCB is faulty. The wiring is faulty (short circuit, open circuit).

Condition:

0001 The lock signal arrives for 5 secs or more although the laser scanner cooling fan (FM3) is driven.

0002 The lock signal arrives for 5 secs or more although the laser driver cooling fan (FM5) is driven.

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E202

(iR8500)

Main cause: The scanner HP sensor (PS1) is faulty. The scanner motor (M5) is faulty. The reader controller PCB is faulty.

Condition:

0000 The scanner home position cannot be detected within a specific period of time after the power switch or the Start key is turned on.

Caution: No code is indicated. The keys are disabled. The code may be checked in service mode (COPIER>DISPLAY>ERR).

E202

(iR7200)

Main Cause: The scanner HP sensor (PS102) is faulty. The scanner motor (M101) is faulty. The reader controller PCB is faulty.

Condition:

0001 The scanner HP sensor does not turn off even when the scanner has been moved 40 mm forward after the main power switch has been turned on or the Start key has been pressed.

0002 The scanner HP sensor does not turn on even when the scanner has been moved 450 mm in reverse.

E204

(iR8500)

Main cause: The scanner motor (M5) is faulty. The image leading edge sensor (PS3) is faulty. The ADF controller PCB is faulty. The reader controller PCB is faulty.

Condition:

0000 The image leading edge signal is not generated during forward movement in fixed reading mode or during a search for home position. Or, in stream reading mode, the image leading edge signal does not arrive from the ADF controller PCB.

Caution: No code is indicated. The keys are disabled. The code may be checked in service mode (COPIER>DISPLAY>ERR).

E204

(iR7200)

Main Cause: The ADF controller PCB is faulty. The reader controller PCB is faulty.

Condition:

0001 During printing, the image leading edge signal does not arrive from the ADF.

E211

(Indicated if iR8500)

Main cause: The thermistor (TH3) inside the fluorescent lamp heater is faulty. The light adjustment control PCB is faulty. The reader controller PCB is faulty. The wiring is faulty (short circuit, open circuit).

Condition

0000 The temperature around the fluorescent lamp does to exceed 10°C 2 mins after the fluorescent lamp heater goes on at power-on. Or, the temperature around the fluorescent lamp is 0°C or lower after the power is turned on.

E215

(Indicated if iR8500)

Main cause: The thermistor (TH3) inside the fluorescent lamp heater has a short circuit. The light adjustment control PCB is faulty. The reader controller PCB is faulty. The wiring is faulty (short circuit, open circuit).

Condition

0000 The reading of temperature around the fluorescent lamp is 170°C or higher while the fluorescent lamp is OFF.

E218

(Indicated if iR8500)

Main cause: The fluorescent lamp is not mounted properly.

Condition

0000 The absence of the fluorescent lamp is detected when the power is turned on

E219

(Indicated if iR8500)

Main cause: The fluorescent lamp has reached the end of its life (inadequate intensity). The thermistor (TH3) inside the fluorescent lamp heater is faulty.

Condition

0000 The reading of temperature around the fluorescent lamp is 170°C or higher while the fluorescent lamp is ON.

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E220

(iR8500)

Main cause: The fluorescent lamp activation is faulty. The light adjustment sensor is faulty. The light adjustment control PCB is faulty. The inverter PCB is faulty. The reader controller PCB is faulty.

Condition:

0000 The fluorescent lamp does not reach a specific intensity within 10 secs after it is turned on (if the room temperature is 10°C or lower, within 60 secs). Or, the activation detection signal (FL-DTCT) does not go OFF within 5 secs after the fluorescent lamp is turned off; during shading adjustment, the activation detection signal (FL-DTCT) does not go ON within 60 secs after the fluorescent lamp is turned on.

E220

(iR7200)

Main Cause: The lamp inverter PCB is faulty. The reader controller PCB is faulty.

Condition:

0001 The lamp inverter PCB is found to have a fault.

E222

(Indicated if iR8500)

Main cause: The lamp heater (H5) is faulty. The light adjustment control PCB is faulty. The reader controller PCB is faulty. The wiring is faulty (short circuit, open circuit).

Condition:

0000 During initial activation after power-on, the heater does not reach 70°C within 5 mins after it is turned on. Or, during standby or reading, the heater does not reach 75°C within 3 mins after it is turned on.

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E225

(Indicated if iR7200)

Main Cause: The scanning lamp (xenon tube) is faulty. The inverter PCB is faulty. The CCD/AP PCB is faulty. The reader controller PCB is faulty.

Condition:

- 0000 A specific signal level cannot be attained by CCD gain correction at power-on.
- 0002 The edge gain correction value changed more than a specific level compared with the correction value used for the preceding sheet.

E240

Main cause: The main controller PCB is faulty. The DC controller PCB is faulty. The wiring is faulty (short circuit, open circuit).

Condition:

- 0000 A communication fault occurs between the CPU of the DC controller PCB and the main controller PCB.

E241

(Indicated if iR8500)

Main cause: The original orientation detection PCB is faulty. The wiring is faulty (short circuit, open circuit). The reader controller PCB is faulty.

Condition:

- 0000 The initial communication failed between the CPU of the reader controller PCB and the original orientation detection PCB.
- 0001 When identifying the orientation of an original, no result is communicated from the original orientation detection PCB until the next session.
- 0002 No result on the last original is communicated 5 secs after the end of reading the last original.

E243

(iR8500)

Main cause: The control panel CPU PCB is faulty. The main controller PCB is faulty.

Condition:

- 0000 A communication fault occurs between the CPU of the main controller PCB and the control panel CPU PCB.

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E243

(iR7200)

Main Cause: The control panel CPU PCB is faulty. The main controller PCB is faulty.

Condition:

0000 An error has occurred in communication between the CPU of the control panel CPU PCB and the main controller PCB.

E248

(Indicated if iR7200)

Main Cause: The EEPROM on the reader controller PCB is faulty. The reader controller PCB is faulty.

Condition:

0001 The ID read into the EEPROM when the main power switch has been turned on and the ID in the ROM do not match.

0002 When data is written into EEPROM, the data written and the data read do not match.

0003 When data is written, the ID in the EEPROM and the ID in the ROM are found not to match.

E251

(Indicated if iR8500)

Main cause: The inverter cooling fan (FM9) is faulty. The wiring is faulty (short circuit, open circuit). The reader controller PCB is faulty.

Condition:

0000 The lock signal (FM9LCK) arrives for 5 secs or more although the inverter cooling fan (FM9) is driven.

E302

(iR8500)

Main cause: The CCD/AP PCB is faulty. The wiring is faulty (short circuit, open circuit). The reader controller PCB is faulty.

Condition:

0000 During shading operation, shading processing does not end on the reader controller PCB.

E302

(iR7200)

Main Cause: The CCD/AP PCB is faulty. The wiring is faulty (short circuit, open circuit). The reader controller PCB is faulty.

Condition:

- 0001 During shading, the reader controller PCB does not end shading in 1 sec.
- 0002 In stream reading, the edge white accumulation (processing) does not end after a period of 10 secs.

E315

(Indicated if iR8500)

Main cause: The reader controller PCB is faulty. The main controller PCB is faulty.

Condition:

- 0000 During image rotation, encoding/decoding has a fault.

E320

(Indicated if iR8500)

Main cause: The CCD/AP PCB is faulty. The wiring is faulty (short circuit, open circuit). The reader controller PCB is faulty.

Condition:

- 0000 When reading an image, no image read end communication from the CCD/AP PCB arrives at the reader controller PCB within 60 secs.

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- ADF (E400 to E420)

E400

(Indicated if iR8500)

Main cause	The communication cable between ADF and the copier is faulty. The ADF controller PCB is faulty.
Condition	0000 While the ADF is in standby, the communication with the copier is disrupted for 5 secs or more. Or, when ADF is in operation, the communication with the copier is disrupted for 0.5 sec or more.

E402

(Indicated if iR8500)

Main cause	The belt motor (M2) in the ADF is faulty. The belt motor cl•ck sensor (PI1) is faulty. The ADF controller PCB is faulty.
Condition	0000 When the belt motor drive signal is generated, no clock signal is generated for 100 msec.

E404

(Indicated if iR8500)

Main cause	The delivery motor (M5) is faulty. The delivery motor clock sensor (PI11) is faulty. The ADF controller PCB is faulty.
Condition	0000 When the delivery motor drive signal is generated, no clock signal is generated for 200 msec.

E405

(Indicated if iR8500)

Main cause	The separation motor (M4) is faulty. The separation motor clock sensor (PI2) is faulty. The ADF controller PCB is faulty.
Condition	0000 When the separation motor drive signal is generated, no clock signal is generated for 200 msec.

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E410

(Indicated if iR8500)

Main cause: The pickup motor (M3) is faulty. The pickup roller height sensor 1 (PI8) is faulty. The pickup roller height sensor 2 (PI9) is faulty. The pickup roller home position sensor (PI7) is faulty. The ADF controller PCB is faulty.

Condition:

0000 When the pickup motor is driven, no signal is generated by the pickup roller height sensor 1 (PI8) or 2 (PI9). Or, when the pickup motor is driven, no signal is generated by the pickup roller home position sensor (PI7) within 2 secs.

E412

(iR8500)

Main cause: The cooling fan (FM1) is faulty. The ADF controller PCB is faulty.

Condition:

0000 The lock signal arrives for 100 msec or more although the cooling fan is driven.

E412

(iR7200)

Main cause: The cooling fan (FM1) is faulty. The ADF controller PCB is faulty.

Condition:

0001 While the cooling fan is being driven, the lock signal (FMLCK) arrives for 100 msec or more.

E420

(iR8500)

Main cause: The EEPROM is faulty. The ADF controller PCB is faulty.

Condition:

0000 When the power switch of the host machine is turned on, the backup data of EEPROM cannot be read. Or, the data, although read, has a fault.

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E420

(iR7200)

Main cause: The EEPROM is faulty. The ADF controller PCB is faulty.

Condition:

0001 When the host machine's power switch is turned on, the backup data of the EEPROM cannot be read or the data, if read, has an error.

E421

(Indicated if iR7200)

Main Cause: The EEPROM is faulty. The ADF controller PCB is faulty.

Condition:

0001 Backup data cannot be written to the EEPROM or the data, if written, has an error.

E422

(Indicated if iR7200)

Main Cause: The IPC communication has an error. The communication line has an open circuit. The ADF controller PCB is faulty.

Condition:

0001 While the machine is in standby, the communication with the host machine has been interrupted for 5 secs or more. or, while the machine is in operation, the communication with the host machine has been interrupted for 0.5 sec or more.

- Finisher (E500 to E514)

E500

Main cause: The finisher controller PCB is faulty (data communication with copier). The DC controller PCB is faulty.

Condition:

0000 The communication with the copier is disrupted and, in addition, is not recovered after 5 secs or retransmission. Or, the communication is disrupted and then recovered three times in 5 secs (This error is detected by the finisher).

E501

Main cause: The finisher controller PCB is faulty (data communication with the slave CPU).

Condition:

0000 The communication between the master CPU (IC106) and the slave CPU (IC125) is disrupted.

E503

Main cause: The saddle stitcher controller PCB is faulty. The finisher controller PCB is faulty (data combination with the saddle).

Condition:

0000 The communication between the saddle stitcher controller PCB and the finisher controller PCB is disrupted.

E505

Main cause: The EEPROM is faulty. The finisher controller PCB is faulty. The punch driver PCB is faulty.

Condition:

0001 The checksum of the EEPROM has an error (offset value error of aligning plate).

0002 The checksum of the EEPROM has an error (D/A conversion value error in motor drive or sensor adjustment value).

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E506

Main cause: A fault occurs in downloading to the flash ROM built into the slave CPU (IC125).

Condition:

- 0001 A fault occurs in the serial communication for data transmission.
- 0002 A fault occurs in write operation to the flash memory (write operation fails).
- 0003 A fault occurs in transferring the user program (checksum mismatch).
- 0004 A fault occurs in transferring the slave program (checksum mismatch).
- 0005 After a shift to download mode, 3 mins passes without any operation. Or, the machine is started up without completing downloading.

E510

Main cause: The inlet motor (M1) is faulty. The finisher controller PCB is faulty.

Condition:

- 00FF When the motor is in operation, the clocks from the inlet motor indicates 50 mm/sec less for 1 sec or more.

E514

Main cause: The stack delivery motor (M7) is faulty. The stack delivery motor clock sensor (PI12) is faulty. The finisher controller PCB is faulty.

Condition:

- 00FF When the motor is in operation, the clock signals from the stack delivery motor clock sensor indicate 50 mm /sec or less for 1 sec.

- Inserter (E515)

E515

Main cause	The inserter clock sensor (PI42) is faulty. The insert motor (M15) is faulty. The inserter driver PCB is faulty.
Condition	00FF When the motor is in operation, the clock input from the inserter motor is less than indicated.

- Paper folding unit (E518)

E518

Main cause	The folder motor (M14) is faulty. The folder driver PCB is faulty.
Condition	00FF When the motor is in operation, the clock input from the folder motor is less than indicated.

- Finisher (E530 to E 595)

E530

Main cause	The rear aligning plate home position sensor (PI9) is faulty. The rear alignment motor (M5) is faulty. The finisher controller PCB is faulty.
Condition	0001 When the rear aligning plate motor is driven for a specific period of time, the aligning plate does not return to home position. 0002 When the rear aligning plate motor is driven for a specific period of time, the aligning plate does not leave home position.

E531

Main cause	The stapling home position sensor (inside the stapler) is faulty. The stapler motor (M11) is faulty. The swing guide safety switch (MSW2) is faulty. The stapler safety switch (front; MSW6) is faulty). The stapler safety switch (rear; MSW7) is faulty. The finisher controller PCB is faulty.
Condition	0001 The stapler does not return to stapling home position when the stapler motor is driven for 0.5 sec. 0002 The stapler does not leave stapling home position when the stapler motor is driven for 0.5 sec.

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E532

Main cause: The stapler shift home position sensor (PI16) is faulty. The stapler shift motor (M10) is faulty. The swing guide safety switch (MSW2) is faulty. The stapler safety switch (front; MSW6) is faulty. The stapler safety switch (rear; MSW7) is faulty. The finisher controller PCB is faulty.

Condition:

- 0001 The stapler does not return to stapler shift home position when the stapler shift motor is driven for 4 secs.
- 0002 The stapler does not leave the stapler shift home position when the stapler shift motor is driven for 4 secs.

E535

Main cause: The swing guide open sensor (PI15) is faulty. The swing guide closed sensor (PI14) is faulty. The swing motor (M8) is faulty. The finisher controller PCB is faulty.

Condition:

- 0001 The swing guide closed sensor does not go ON when the swing motor is rotated for 2 secs.
- 0002 The swing guide open sensor does not go ON when the swing motor is rotated for 1 sec.

E537

Main cause: The front aligning plate home position sensor (PI7) is faulty. The front aligning plate motor (M4) is faulty. The finisher controller PCB is faulty.

Condition:

- 0001 The aligning plate dose not return to home position when the front aligning plate motor is driven for 4 secs.
- 0002 The aligning plate does not leave the home position when the front aligning plate motor is driven for 4 secs.

E540

Main cause: The tray A lift motor (M13) is faulty. The tray A idle rotation sensor (PI19) is faulty. The tray A paper sensor (PI20) is faulty. The tray approach switch (MSW 3) is faulty.

Condition:

- 0001 A clock error is identified; during motor rotation, the lock from the tray A idle rotation sensor is absent for 250 msec.
- 0002 An area error is detected; the position of the tray A is below the area of the tray B.
- 0003 A safety switch error is identified.
- 00FF A time-out condition is identified; the ascent/descent operation does not end within 25 secs when the tray A lift motor is driven.

E542

Main cause: The tray B lift motor (M12) is faulty. The tray B idle rotation sensor (PI18) is faulty. The tray B lower limit sensor (PI24) is faulty. The tray B paper sensor (PI17) is faulty.

Condition:

- 0001 A clock error is identified; during motor rotation, the lock from the tray B idle rotation sensor is absent for 250 msec.
- 0002 An area error is detected; the position of the tray B is above the area of the tray A.
- 0003 A safety switch error is identified.
- 00FF A time-out condition is identified; the ascent/descent operation does not end within 25 secs when the tray B lift motor is driven.

E551

Main cause: The power supply fan (FM1) is faulty. The feeding/cooling fan (FM2) is faulty.

Condition:

- 0001 The power supply fan is identified as being at rest for 2 secs or more.
- 0002 The feeding/cooling fan is identified as being at rest for 2 secs or more.

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E577

Main cause: The paddle motor (M9) is faulty. The paddle home position sensor (PI14) is faulty.

Condition:

0001 When the motor is started, the paddle home position sensor does not detect the paddle within 5 secs.

E578

Main cause: The knurled belt motor (M20) is faulty. The knurled belt home position sensor (PI31) is faulty.

Condition:

0001 The home position is not return to when the knurled belt motor is rotated for 1 sec or more.

0002 The home position is not leave when the knurled belt motor is rotated for 1 sec or more.

E583

Main cause: The tray auxiliary plate motor (M6) is faulty. The tray auxiliary plate extraction sensor (PI 11) is faulty.

Condition:

0001 The tray auxiliary plate extract sensor does not go ON a specific period of time after the tray auxiliary plate motor is driven.

0002 The tray auxiliary plate extract sensor does not go OFF a specific period of time after the tray auxiliary plate motor is driven.

E584

Main cause: The paddle motor (used also to drive the shutter; M9) is faulty. The shutter home position sensor (PI12) is faulty.

Condition:

0001 The shutter does not return to home position when the paddle motor is rotated for 1 sec or more.

0002 The shutter does not leave home position when the paddle motor is rotated for 1 sec or more.

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E590

Main cause: The punch hole position sensor (PI24) is faulty. The punch 2/3-hole sensor (PI33) is faulty. The punch motor clock sensor (PI34) is faulty. The punch motor (M18) is faulty. The punch driver PCB is faulty.

Condition:

- 0001 The puncher does not return to home position when the punch motor has been driven for a specific period of time.
- 0002 The puncher does not leave home position when the punch motor has been driven for a specific period of time.
- 0003 The start point of braking of the punch motor is faulty.
- 0004 The puncher is not in home position when a 5-hole punch switchover is made (2/3-hole punch only).

E593

Main cause: The punch slider home position sensor (PI22) is faulty. The punch registration motor (M17) is faulty. The punch driver PCB is faulty.

Condition:

- 0001 The puncher does not return to horizontal registration home position when the punch registration motor is driven for a specific period of time.
- 0002 The puncher does not leave the horizontal registration home position when the punch registration motor is driven for a specific period of time.

E594

Main cause: The punch sensor home position sensor (PI23) is faulty. The punch sensor slide motor (M19) is faulty. The punch drive PCB is faulty.

Condition:

- 0001 The punch paper edge sensor (PI21) does not return to home position when the punch sensor slide motor is driven for a specific period of time.
- 0002 The punch paper edge sensor (PI21) does not leave home position when the punch sensor slide motor is driven for a specific period of time.

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E595

Main cause	The punch waste paper feed motor (M16) is faulty. The punch waste paper feed sensor (PI27) is faulty. The punch driver PCB is faulty.
Condition	00FF When the punch waste paper feed motor is in operation, the input from the punch waste paper feed sensor does not change.

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- Saddle Stitcher (E5F0 to E5F9)

E5F0

Main cause: The paper positioning plate home position sensor (PI49) is faulty. The paper positioning plate motor (M44) is faulty. The saddle stitcher controller PCB is faulty.

Condition:

0001 The paper positioning plate home position sensor does not go ON when the paper positioning plate motor is driven for 1.25 secs or more.

0002 The paper positioning plate home position sensor does not go OFF when the paper positioning plate motor is driven for 1 sec or more.

E5F1

Main cause: The folding motor clock sensor (PI47) is faulty. The paper folding motor (M42) is faulty. The saddle stitcher control PCB is faulty.

Condition:

0001 The number of detection pulses of the folding motor clock sensor is below a specific value.

E5F2

Main cause: The guide home position sensor (PI54) is faulty. The guide motor (M43) is faulty. The saddle stitcher controller PCB is faulty.

Condition:

0001 The guide home position sensor does not go ON when the guide motor is driven for 0.4 sec or more.

0002 The guide home position sensor does not go OFF when the guide motor is driven for 1 sec or more.

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E5F3

Main cause: The aligning plate home position sensor (PI48) is faulty. The alignment motor (M45) is faulty. The saddle stitcher controller PCB is faulty.

Condition:

- 0001 The aligning plate home position sensor does not go ON when the alignment motor is driven for 0.5 sec or more.
- 0002 The aligning plate home position sensor does not go OFF when the alignment motor is driven for 1 sec or more.

E5F4

Main cause: The saddle rear stapler home potion switch (MS32) is faulty. The saddle rear stapler motor (M46) is faulty. The saddle stitcher controller PCB is faulty.

Condition:

- 0001 The saddle rear stapler home position switch does not go ON when the saddle rear stapler motor is rotated CW for 0.5 sec or more.
- 0002 The saddle rear stapler home position switch does not go OFF when the saddle rear stapler motor is rotated CCW for 0.5 sec or more.

E5F5

Main cause: The saddle front home position switch (MS34) is faulty. The saddle front motor (M47) is faulty. The saddle stitcher controller PCB is faulty.

Condition:

- 0001 The saddle front home position switch does not go ON when the saddle front motor is rotated CW for 0.5 sec or more.
- 0002 The saddle front home position switch does not go OFF when the saddle front motor is rotated CCW for 0.5 sec or more.

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E5F6

Main cause: The pushing plate motor clock sensor (PI45) is faulty. The paper pushing plate leading edge position sensor (PI56) is faulty. The paper pushing plate home position sensor (PI55) is faulty. The paper pushing plate motor (M48) is faulty. The saddle stitcher controller PCB is faulty.

Condition:

- 0001 The paper pushing plate home position sensor does not go ON when the paper pushing plate motor is driven for 0.3 sec or more.
- 0002 The paper pushing plate home position sensor does not go OFF when the paper pushing plate motor is driven for 0.3 sec or more.
- 0003 The paper pushing plate leading edge position sensor does not go OFF when the paper pushing panel motor is driven for 0.3 sec or more.
- 0004 The number of detection pulses of the flapper pushing plate motor clock sensor is below a specific value.

E5F7

Main cause: The saddle tray motor (M49) is faulty. The saddle tray home position sensor (PI41) is faulty. The saddle stitcher controller PCB is faulty.

Condition:

- 0001 The saddle tray home position sensor does not go ON when the saddle tray motor is driven for 8 secs or more.
- 0002 The saddle tray home position sensor does not go OFF when the saddle tray motor is driven for 1 sec or more.

E5F8

Main cause: The guide home position sensor (PI54) is faulty. The paper pushing plate home position sensor (PI55) is faulty. The paper pushing plate leading edge position sensor (PI56) is faulty. The saddle stitcher controller PCB is faulty.

Condition:

- 0001 The connector of the guide home position sensor is disconnected.
- 0002 The connector of the paper pushing plate home position sensor is disconnected.
- 0003 The connector of the paper pushing plate leading edge position sensor is disconnected.

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E5F9

Main cause

The inlet cover open detection sensor (PI51) is faulty. The output cover open detection sensor (PI46) is faulty. The saddle stitcher controller PCB is faulty.

Condition

0001 While the inlet cover, front cover, and delivery cover are closed (as detected), the inlet cover is open (as detected) for 1 sec or more after the start of initial rotation of the host machine or the start of printing.

0002 While the inlet cover, front cover, and delivery cover are closed (as detected), the output cover is open (as detected) for 1 sec or more from the start of initial rotation of the host machine or the start of printing.

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- Copier (E601-E830)

E601

Main cause: The wiring is faulty (short circuit, open circuit). The hard disk drive is faulty. The DC controller PCB is faulty. The main controller PCB is faulty.

Condition:

0000 For image transmission between the main controller PCB and the hard disk drive, the main controller PCB detects an error in the control information. Or, for image transmission between the main controller PCB and the DC controller PCB, the DC controller PCB detects an error in the control information.

E602

Main cause: The wiring is faulty (short circuit, open circuit, disconnection). The installed system file is faulty. The hard disk drive is faulty. The main controller PCB is faulty.

Condition:

0001 A fault is detected in the mounting of the hard disk when the system on the hard disk is started up using the BOOT ROM.

0002 The appropriate system file cannot be found on the hard disk when the system on the hard disk is started using the BOOT ROM.

0003 A sector error occurs on the hard disk when the system on the hard disk is started up using the BOOT ROM.

E604

Main cause: The image memory is faulty. The main controller PCB is faulty.

Condition:

0000 An error occurs in image memory.

E605

Main cause: The battery for image memory is faulty. The main controller PCB is faulty.

Condition:

0000 A fault is detected in the voltage of the battery for image memory.

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E674

Main cause: The fax board is faulty.

Condition:

0000 An error occurs on the fax board.

E676

Main cause: Any of the various printer board (options) is faulty.

Condition:

0000 An error occurs in any of the printer board (options).

E677

Main cause: Any of the printer board (options) is faulty. The main controller PCB is faulty.

Condition:

0000 An error occurs in the communication between any of the printer boards (options) and the machine controller PCB.

Caution: In the case of E677,

- If it occurs when the main power is turned on,
  Suspect a fault in the hardware.
  Keep in mind that, if the power switch is turned off and then on too fast, that discrepancy between the timing of initiation between the copier and the printer board can cause E677. Be sure to allow 5 secs or more before turning the power switch back on.
- If it occurs while the machine is in operation,
  If the fault occurs during printing and if the machine starts up normally when it is turned off and on after canceling the sprint job in question, suspect an excess load on the CPU.
  The CPU of the printer board is subjected to an excess load continuously if the machine is forced to process a large amount of print data when receiving a large amount of data from the network. If this is the case, cancel all print jobs, and turn off and then on the main power switch. Advise the user that it is a good idea to send print data item-by-item instead of all at the same time.

E710

Main cause: The DC controller PCB is faulty. The reader controller PCB is faulty. The main controller PCB is faulty.

Condition:

0001 When the main power is turned on, the IPC (IC5) on the reader controller PCB cannot be initialized.

0002 When the main power is turned on, the IPC (IC40) on the DC controller PCB cannot be initialized.

0003 When the main power is turned on, the IPC (IC1003) on the main controller PCB cannot be initialized.

E711

Main cause: The connector has poor connection. The NE controller PCB is faulty. The copy data controller PCB is faulty. The ADF controller PCB is faulty. the finisher controller PCB is faulty.

Condition:

0001 Data is written to the error register of the IPC (IC5) on the reader controller PCB four times or more within 1.5 secs.

0002 Data is written to the error register of the IPC (IC40) on the DC controller PCB four times or more within 2 secs.

0003 Data is written to the error register of the IPC (IC1003) on the main controller PCB four times or more within 2 secs.

E712

Main cause: The connector has poor connection. The ADF 24V power supply is faulty. The and controller PCB is faulty. The reader controller PCB is faulty.

Condition:

0000 The communication IC (IPC) on the ADF controller PCB is out of order.

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E713

Main cause	The connector has poor connection. The finisher accessory power supply PCB is faulty. The finisher controller PCB is faulty. The DC controller PCB is faulty.
Condition	0000 The communication IC (IPC) on the finisher controller PCB is out of order.

E717

Main cause	The wiring is faulty (short circuit, open circuit). The copy data controller or the NE controller is faulty. The main controller PCB is faulty.
Condition	0000 The copy data controller or the NE controller is out of order, or the wiring has an open circuit.
Caution	You must clear the error in service mode: COPIER>FUNCTION>CLEAR>ERR.

E719

Main cause	The wiring is faulty (short circuit, open circuit). The coin vendor is faulty. The main controller PCB is faulty.
Condition	0002 The communication between the coin vendor and the main controller PCB is interrupted.
Caution	You must clear the error in service mode: COPIER>FUNCTION>CLEAR>ERR.

E732

Main cause	The cable connector has poor connection. The reader controller PCB is faulty.
Condition	0001 The main controller PCB detects a fault in the communication between the reader controller PCB and the main controller PCB.

E733

Main cause: The connector has poor connection. The DC controller PCB is faulty.

Condition:

0000 The main controller PCB detects an error in the communication between DC controller PCB and the main controller PCB.

E737

Main cause: The SDRAM is faulty. The main controller PCB is faulty.

Condition:

0000 A faulty occurs in the SDRAM.

E740

Main cause: The Ethernet card is faulty. The main controller PCB is faulty.

Condition:

0000 An error is detected on the Ethernet card.

E741

Main cause: The PCI bus has poor connection. The main controller PCB is faulty.

Condition:

0000 A fault occurs in the PCI bus.

E744

Main cause: The version of the system software installed to the hard disk and that of the language module do not match. Or, there is no language module that can be used.

Condition:

0001 The version of the system software installed to the hard disk and that of the language module selected in user mode do not match.

0002 The size of the file of the downloaded language module exceeds a specific value.

0003 The module of the language selected in user mode does not exist. Or, it is not a proper language module.

0004 Loading of a language module fails.

Caution: This error will automatically reset the language selection function of user mode. Use the language module (Japanese or English) built into the system software next time when you turn off and then on the machine.

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E800

Main cause: The auto power-off circuit has an open circuit. The DC controller PCB is faulty.

Condition:

0000 An open circuit is detected for the auto power-off circuit for 3 secs or more.

E804

Main cause: The wiring is faulty (short circuit, open circuit). The power supply cooling fan 1(FM11) is faulty. The power supply cooling fan 2 (FM12) is faulty. The DC controller PCB is faulty. The main controller PCB is faulty.

Condition:

0000 The lock signal is detected for 5 secs or more although the power supply cooling fan (1 and 2) is driven.

0004 The temperature around the main controller PCB is identified as being 80°C or higher.

Caution: In the case of a fault in the system fan (FM16), an alarm will be issued and indicated under ALARM-2 (000804-0004).

E805

Main cause: The wiring is faulty (short circuit, open circuit). The fixing assembly heat discharge fan (FM2) is faulty. The DC controller PCB is faulty.

Condition:

0000 The lock signal is detected for 5 secs or more although the fixing assembly heat discharge fan is driven.

E820

Main cause: The wiring is faulty (short circuit, open circuit). the drum fan (FM8) is faulty. The DC controller PCB is faulty.

Condition:

0000 The lock signal is detected for 5 secs or more although the drum fan is driven.

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E823

Main cause: The wiring is faulty (short circuit, open circuit). The pre-transfer charging assembly fan (FM10) is faulty. The DC controller PCB is faulty.

Condition:

0000 The lock signal is detected for 5 secs or more although the pre-transfer charging assembly fan is driven.

E824

Main cause: The wiring is faulty (short circuit, open circuit). The primary charging fan (FM1) is faulty. The DC controller PCB is faulty.

Condition:

0000 The lock signal is detected or 5 secs or more although the primary charging fan is driven.

E830

Main cause: The wiring is faulty (short circuit, open circuit). The separation fan (FM13) is faulty. The DC controller PCB is faulty.

Condition:

0000 The lock signal is detected for 5 secs or more although the separation fan is driven.

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